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DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) and

THE DOW CHEMICAL COMPANY (DOW)

TRI-CITIES DIOXIN COMMUNITY MEETING

MAY 10, 2006

6:30 - 9:00 p.m.

HORIZONS CENTER

6200 STATE STREET

SAGINAW

1 -o0o-

2 CHUCK NELSON: Hello, my name is Chuck
3 Nelson. I'm the facilitator for tonight's meeting.
4 My day job is as a faculty member of Michigan State
5 University in the Department of Community,
6 Agricultural, Recreation and Resource Studies. I
7 welcome you here tonight to the Tri-Cities dioxin
8 community meeting.

9 We want to start off by having you look at the
10 agenda. We've made one change in the agenda that is
11 different from some of the previous community
12 meetings. You will note that after each section that
13 there is opportunity for questions. In the past,
14 we've tried to have you hold them until the end. We
15 believe it's really critical to give you an
16 opportunity to ask questions after each section. If
17 we run out of time, we will not take time away from
18 the next segment. We still have 40 minutes at the end
19 to do question and answer. So you'll get your chances
20 basically at any questions that you may have.

21 I would also call to your attention the ground
22 rules in the back for the community meetings. We'll
23 do our best to be timely. We'd like one person to
24 speak, after acknowledgement from the facilitator, at
25 a time. Please show respect. Please be honest. We

1 encourage your participation. Many of you wish to
2 speak about certain topics, so we will do our utmost
3 that everybody will get a chance, which means you have
4 to be to the point with your comments. Appreciate
5 when you show sensitivity and speak up clearly.

6 Everything we do we are trying to be open and
7 transparent, and I would let you know that these
8 meetings are recorded by both a court reporter and the
9 transcripts are available, and as you note, they're
10 also be videotaped. Finally, the folks from Dow, the
11 DEQ and other agencies will be here for a half hour
12 after the end of the meeting if you have questions or
13 comments, other things you want to talk to them about,
14 so I would encourage you to stay.

15 Now they've instructed me that I cannot leave the
16 podium when I'm facilitating. I love to walk around,
17 but they said that nobody could hear me on the
18 videotape the last time, so I will be up here
19 fidgeting a lot because I'm not used to standing
20 still, so I hope you'll bear with me.

21 I would like to ask John Musser to come up,
22 please, and introduce the folks from Dow, and then Jim
23 Sygo will introduce the folks from the State.

24 JOHN MUSSER: Thank you, Chuck. Welcome,
25 everyone. Thanks again. See some familiar faces.

1 That's good news. I wish we had more. We'll work on
2 it. I wanted to just introduce some of the Dow folks
3 here, some that are Dow employees and others that are
4 working as consultants to Dow, in no particular order.

5 David Gustafson, David, if you could just stand
6 up and show who you are. David is here somewhere.
7 David is our Regulatory Affairs Manager for the
8 Michigan Operations. Kent Woodburn, Kent is an
9 environmental toxicologist, that's fins, feathers and
10 fur, and Peter Wright, who is in-house counsel as
11 opposed to outhouse counsel. Tom Long with Sapphire
12 Group, a toxicologist and also risk assessor. Jack
13 Klow, consultant to Dow for public affairs and
14 community outreach. I don't see Jack. He's here.

15 Dr. Priscilla Denny, she's responsible for the
16 interim response actions. She's manager of that
17 effort. Joe Heinbock, Joe is our project manager
18 consultant with Demacsimus. Jim Collins, Jim heads up
19 our epidemiology group at Dow, and in addition, did I
20 miss any Dow folks here? Bob Badinski, Bob is a
21 toxicologist, heads up our toxicology group.

22 We have a couple of other guests here this
23 evening. I will introduce them as they -- just before
24 they give their presentation, if that's all right, and
25 one other individual I saw, Brian Eggers is here.

1 Brian is with AKT Peerless. They're a contractor to
2 Dow that works on our effort to do the interim
3 response activities. Denise Kay from Imtrex,
4 environmental toxicologist. I think that's it. Did I
5 miss anybody on the Dow team? Very good. Thank you
6 all. Jim.

7 JIM SYGO: We've got several agencies here.
8 I want to introduce them all. Let's start with DEQ
9 first. Steve Buda is here. George Bruchman, who's
10 Division Chief of Waste and Hazardous Materials. Al
11 Taylor, geologist with Hazardous Waste Section.
12 Cheryl Howe, Environmental Engineer with Hazardous
13 Waste Section in the back of the room. Terry
14 Walkington, our District Supervisor for Waste and
15 Hazardous Materials. And Patricia Peters, our
16 inspector for the Waste and Hazardous Materials
17 Division out of the Saginaw District -- I'm sorry, the
18 Saginaw Bay District office. With MDCH, Michigan
19 Department of Community Health, we have Linda Dykema.
20 We have Brendan Boyle and Cory Gretch, and also from
21 EPA, we have John Stekedee, who's with Regional
22 Counsel, and Greg Wetloff, who is the Project Officer
23 for EPA.

24 We have a very long agenda today, so we're going
25 to get right into this. I've been asked to make a few

1 initial comments relative to where we are and the
2 process we've gone through so far since our last
3 meeting, and in this overview, in terms of where we
4 were on February 9th, if you all recall, at the end of
5 December, we received the remedial investigation
6 workplan for Dow, and at the February 9th meeting,
7 they made a presentation here, which took up most of
8 that time basically, and as part of that meeting, we
9 indicated that we would be getting comments out --
10 high level comments to Dow in the near future.

11 The Department did that, the DEQ did that, on
12 March 2nd. Actually, EPA released those comments a
13 little bit earlier. It was just after the last
14 meeting that we had on February 10th they released
15 their comments, but we submitted all those comments to
16 Dow on March 2nd, and as a result, they were required
17 to respond pursuant to the license by May 1st.

18 If you recall at the last meeting, we also asked
19 the public, as well as we had inquired of the trustees
20 that are involved in this process, to submit any
21 comments they had on the RI workplan as well, and it
22 became apparent as we were receiving comments that
23 there was a lot of material that we had to go through
24 and a lot of evaluation that we would continue to have
25 to do.

1 As a result, what we indicated to Dow was the
2 second phase of notice of deficiency comments would be
3 coming subsequent to that March 15th date. We
4 recognized some of the difficulties with all the
5 comments that we were receiving in order to move a
6 path forward that would get us to an approvable RI
7 workplan. What we decided to do with this, because we
8 thought it was most important to make sure that we
9 made the greatest benefit out of the field season this
10 year, was to indicate to Dow, and subsequent to
11 receiving the first notice of deficiency, that we'd
12 like to have them concentrate on those questions that
13 dealt primarily with dealing with sampling for this
14 summer season and the spring and fall season.

15 As a result, we sent a notice to Dow indicating
16 that we would like them to respond, primarily by
17 May 1st, to comments 1 through 7 of our notice of
18 deficiency, 9, 11, 16, and also respond to the concern
19 relative to the soil sampling that would be done for
20 the City of Midland and that was responsive in our NOD
21 to comment number ten. What we did ask is for Dow to
22 review these comments, and again, that they would be
23 receiving additional detailed comments as a result of
24 the March 15th deadline for the public and the
25 trustees. We ended up submitting a second notice of

1 deficiency on April 13th, which included more detailed
2 comments relative to the concerns and deficiencies in
3 the RI workplan.

4 The path forward that was selected as part of
5 this, as I had indicated, was really to concentrate on
6 making sure that samples were collected in a manner
7 for the types of studies that needed to be done. That
8 we're going to continue support moving forward with
9 the RI workplan and completing the RI workplan, but we
10 recognized that in order to get that done this spring
11 and get into the field season this summer we weren't
12 likely going to have what was a completely approved RI
13 workplan.

14 As a result, the Department extended the amount
15 of time for the RI workplan to be finalized but
16 indicated it was contingent upon having a sampling
17 plan ready to go that could move forward for this
18 season. As part of that, we had indicated that other
19 comments, most of which centered around the human
20 health risk assessment, were to be addressed by no
21 later than December 1st, and that the work to be
22 conducted this summer would address some of the
23 sampling that would be helpful in answering some of
24 those questions relative to the human health risk
25 assessment as part of the sampling that they would do

1 this summer.

2 So the types of work that are going on that will
3 and have been proposed now is an effort to look at a
4 concept called GeoMorph and use that approach in the
5 Tittabawassee River, and that would be a collaborative
6 effort to develop a workplan before the end of June to
7 implement that process. Another element was to look
8 at the first phase of floodplain sampling necessary
9 for 2006, begin to take a look at sampling to the
10 human health risk assessment exposure pathways, and
11 then also to look at the sampling in the City of
12 Midland in a manner that was consistent with the
13 discussions that we've had with the City.

14 We've addressed those concerns now and we're
15 ready to move forward. Let's see, it was May 1st we
16 have received initial proposals from Dow in response
17 to the first NOD. Those have now been placed on our
18 website. We're still reviewing that material. There
19 are some items that we do have some concerns with, in
20 particular, some of the schedules that have been
21 identified, but in the meantime, we'll be moving
22 forward to try and identify and finalize the workplans
23 that will be necessary for this summer.

24 I'm going to turn it over to Al now, and we'll
25 move on from there.

1 AL TAYLOR: Thanks. My name is Al Taylor.
2 I'm the project geologist for this very long-term
3 project now, as it turns out, and what came out of the
4 last meeting was that we got a lot of comments where
5 people wanted to know, okay, what were your principal
6 concerns with the RI workplan as submitted, and so
7 what we've tried to do is condense this down into ten
8 or twelve of what we call our high level concerns.
9 We're going to go through these pretty rapidly. We do
10 have a lot of information provided in the power point
11 presentation. We're going to skip some of it so we
12 can get to the end of this.

13 As Jim noted, this is kind of broken up into two
14 segments. There's sampling that's anticipated to be
15 conducted this summer and then there's the human
16 health risk assessment components, which are a number
17 of slides we'll get into further on and then I will
18 only just mention in here. The asterisks here on
19 this -- next to these indicate that they're required
20 to be addressed by May 1st, in the May 1st submittal,
21 which is currently under review, also noted by Jim.

22 One of the major items -- the first major item we
23 identified is we really needed to have a better
24 schedule of what work the Dow is proposing, needed to
25 be more comprehensive, and basically integrate all the

1 different workplans that Dow is proposing to get to
2 the end of this remedial investigation process.
3 There's a lot of things that are going on
4 concurrently, and there's a lot of key decision
5 points, and really -- you really need to know in time
6 and space where these things are going to happen. As
7 an example, we need to know where a sediment cleanup
8 criteria is going to be developed for the
9 Tittabawassee River in this overall schedule, and we
10 couldn't determine that by looking at the existing
11 schedule. The schedule has been expanded in the
12 May 1st submittal. It's not quite where we want it to
13 be yet, I don't believe, but we're going to be working
14 on that pretty diligently over the next couple of
15 months to get a schedule that we can all agree to and
16 also to inform us more comprehensively how this is all
17 going to fit together.

18 We needed a better description of the overall
19 remedial investigation strategy, basically how the
20 data that's being proposed to be collected, how that's
21 going to fit into the final remedy or the potential
22 alternatives for remedy that are around. If you
23 don't -- we need to begin with the idea of, okay,
24 here's the strategies available to us, the data that
25 we collect needs to be able to support that. We don't

1 want to have to go through another major phase of data
2 collection at the end of this process in order to get
3 to remedial alternatives.

4 The RI needed to list known and suspected
5 exposure pathways and identify the data that needed to
6 be collected. Exposure pathways is how a contaminant
7 gets into a person or into an animal, and our
8 remediation process, you know, cuts that exposure
9 pathway off or eliminates it in some way or prevents
10 it from occurring. For example, exposure pathways
11 would be incidental dust, ingestion, food chain
12 contamination, things like that. Comprehensive
13 identification of PCOI's, now there's an acronym for
14 you, potential constituents of interest, PCOI. That
15 also means still to us more simply contaminants.

16 So this is very important to us, because we need
17 to make sure early on in the process that we've
18 identified all of the potential contaminants that are
19 there. We know that dioxins and furans are a problem,
20 and that's something that's being addressed. What we
21 don't want to find out four or five years from now is
22 that there's some other contaminant out there that we
23 could have been collecting appropriate data for in our
24 RI, and we didn't do that, and we lost that
25 opportunity. We need to have that comprehensive list

1 identified early in the process, and that's a big very
2 big task. Dow has been around for a long time. It's
3 had a lot of -- manufactured a lot of chemicals.
4 There's been a lot of waste streams. PCOI problem is
5 a very large and very complex problem.

6 We need to have soil sampling conducted during
7 the first phases of data collection under the RIWP's,
8 which just basically boils down to is we want data
9 collected on the Priority 1 and Priority 2 properties
10 to identify where dioxin and furan concentrations are
11 on those properties. We have a good model for where
12 those contaminants are. We need to start becoming
13 more informed about that now. We've got a general
14 idea. Now's the time to start during the remedial
15 investigation process and during the human health risk
16 assessment process to find out what the concentrations
17 are, where people are being most exposed, and that's
18 the Priority 1 properties that are frequently or
19 repeatedly flooded and Priority 2 properties. Also,
20 Priority 2 properties in this case also does include
21 agricultural properties.

22 We needed more information on the geospatial
23 model, and I'll just blow through this. I don't want
24 to tie this up too long here. We need a more
25 comprehensive program for this PCOI identification in

1 the Tittabawassee River and also just a more
2 comprehensive sediment sampling program. A couple of
3 key items here, it's very important to determine if
4 the concentrations of contaminants are random in the
5 river and if they're in a pattern. If they're in a
6 pattern, you can obviously investigate them more
7 efficiently. It's very important to make that
8 determination, and you need to have a sampling
9 strategy that's adequate to identify these patterns.

10 Another key item for us is we need to know
11 whether there are chemical or physical properties that
12 are affecting the dioxin distribution, dioxin, furan
13 and other PCOI contaminant distribution in soils and
14 in sediments. A good example of this would be, if we
15 were to determine, and we do have some evidence, that
16 some of the higher levels of dioxin or furan
17 concentrations actually are associated with sand sized
18 particles. If that turns out to be true, then it's a
19 lot easier to collect -- for example, make a sediment
20 trap to collect sand sized particles, you know, than
21 end up with a sediment trap that will not work for a
22 clay sized particle because it will not fall out of
23 solution -- or suspension, excuse me.

24 The RIWP needed to address the preliminary
25 feasible study plan. Basically, it's a rehash of the

1 earlier comment. We need to know kind of what your
2 kind of potential alternatives are for remediation and
3 make sure you collect data to support or eliminate
4 those plans. We needed to get a better understanding
5 of the proposal in the RI to map and understand where
6 there were areas of erosion along the Tittabawassee
7 River, because we know that certain bank soils along
8 the river have very high levels of furan
9 contamination.

10 In order to effectively design remedial
11 alternatives and interim response alternatives even,
12 you need to know where those eroding areas are so that
13 you can potentially do something about them in the
14 short-term and ultimately in the long-term. These are
15 important because contaminated soil falling off the
16 bank and washing off the bank becomes obviously a
17 sediment contamination problem in the river.

18 Same idea on the Midland PCOIs, again potential
19 constituents of interest, want to make sure in the
20 Midland investigation we have a very good idea of what
21 the potential contaminants are and that we take care
22 of those contaminants and collect all the information
23 we need to in the remedial investigation. Again, we
24 don't want to be four or five years down the road and
25 identify a different contaminant that may end up

1 driving a remediation. Data quality objectives, we
2 have some concerns with these data quality objectives,
3 or DQO's, which are proposed by Dow. Basically, DQO
4 describes what data you're collecting is going to be
5 used for. So everyone has to be very comfortable with
6 these DQO's.

7 And now we're getting into the human health risk
8 assessment. I'm just going to comment. We have quite
9 a few of these comments. I'm not going to go through
10 them, but I think it's fair to say that this is -- as
11 Jim noted earlier, this is the area where Dow and the
12 DEQ and EPA are the furthest apart and where more time
13 is necessary in order to come to a resolution on these
14 issues. So these responses to these comments are due
15 by December 1st, '06, and we'll go ahead and provide
16 them.

17 For informational purposes, I'm going to jump to
18 slide 14 now. In addition to the March 2nd notice of
19 deficiency, there was a follow up notice on
20 April 13th, '06, and that provided a few more detailed
21 comments and also provided comments from the Natural
22 Resource Damage Assessment Trustees. They provided a
23 lot of comments to us. We also got a lot of comments
24 from the general public, probably from a number of you
25 people out in the audience tonight. Again, we saw

1 those comments as being very consistent with comments
2 that had been identified by EPA and DEQ staff as well.

3 We are working -- the DEQ and EPA are working
4 with the NRDA Trustees, the Natural Resource Damage
5 Assessment Trustees, and Dow to try and collect as
6 much data that's useful for all of these different
7 regulatory and natural resource damage assessment
8 processes at the same time, so we can get some closure
9 on this as efficiently as possible.

10 As Jim noted, on May 1st, we received a number of
11 sampling plans in response to the March 2nd NOD.
12 Sampling plans were received nine days ago. They're
13 still under review. We can generally comment that a
14 lot of what these deficiencies that have been
15 generally identified are going to be discussed by Dow
16 and ATS and CH2M Hill and the GeoMorph presentation
17 that's going to be in a few minutes and also in the
18 Midland area soils presentation.

19 We have been working in a collaborative manner
20 with Dow on the Midland -- an approach for sampling
21 Midland soils. We're not all the way there yet, but
22 we're getting much closer on that. We're also, as Jim
23 noted, going to be working collaboratively beginning
24 tomorrow -- actually, we've already begun, but we have
25 a series of all day meetings to try to come up with a

1 sampling plan that meets Agency and Dow needs and
2 regulatory needs by June 1st, and as of June 1st,
3 we'll have a conceptual plan together, and Dow will be
4 providing that to us for final review and approval or
5 approval with modifications. We're not prepared to
6 comment in detail on the sampling plans that have been
7 provided in the May 1st proposal. We need to
8 understand them better and see how things are going to
9 all fit together. As Jim noted, right now, the
10 overall schedule does appear to be a concern, but
11 we're still looking at that.

12 Upcoming reviews, I think in June we're going to
13 review the Dow sampling plans and reach conceptual
14 agreement during working sessions as previously
15 discussed. In late June, we'll have DEQ approval of
16 the GeoMorph sampling plan, which will include
17 sampling, we believe if everything goes well, of
18 Priority 1 and Priority 2 properties all along the
19 river as well. This year's GeoMorph work is going to
20 be focused on the upper 6 miles of the river kind of
21 as a pilot to see if it can be successfully rolled out
22 to the rest of the river. Summer and fall, Dow will
23 be implementing the approved plans. December 1st, Dow
24 is going to respond to the other notice of deficiency
25 items identified to them, and at that time we'll also

1 expect Dow to provide a fully revised remedial
2 investigation workplan.

3 Right now we're focused on getting a number of
4 smaller workplans approved, getting work done this
5 field season, but we still have to wrap this all back
6 together so that we have one integrated document
7 moving forward and not a whole bunch of different
8 studies moving in different tracks and on different
9 timelines, and on December 1st, we'll begin review of
10 the revised remedial investigation workplan, and now
11 we go to questions, and I think that's where Chuck
12 comes back up here.

13 CHUCK NELSON: So do you folks have
14 questions for the folks from the DEQ regarding their
15 presentation that you've seen? Seeing none --

16 AUDIENCE MEMBER: I can't understand the
17 difficulty in coming up with a sampling plan. What's
18 the problem? I mean, why does it take so long?
19 You're sampling the soil, is that what you're doing?

20 AL TAYLOR: Soil and sediment, yes. Soil is
21 one of the media being sampled. There's also
22 sediment.

23 AUDIENCE MEMBER: Why do you differ from
24 Dow? I mean, I don't understand the complexity of the
25 plan. I mean, you are going to soil sample --

1 AL TAYLOR: Yes.

2 AUDIENCE MEMBER: -- on different
3 properties, why does it take so long for them to come
4 up with a plan and why would you disagree?

5 AL TAYLOR: Okay. I'll try to --

6 AUDIENCE MEMBER: Am I missing something?

7 AL TAYLOR: Conceptually, it sounds very
8 simple, you go out and sample soil, but it's really
9 not that simple. For example, you're trying to sample
10 soil on a piece of property. You need to collect
11 samples so that you have a statistically valid
12 population of samples, so that you can say, you know,
13 this property has a concentration -- an average
14 concentration or a concentration where you're
15 confident at 90 percent or 95 percent that it is, say,
16 you know, 90 parts per trillion or less. That is not
17 an easy thing to do on a watershed that's 22 miles
18 long and in varying winds. There has to be a very --
19 you have to do it in the most efficient manner
20 possible, because it's going to cost a lot of money to
21 do it, and you have to be -- you have to come up with
22 the correct answer.

23 AUDIENCE MEMBER: So it's not all property.
24 It's a random sampling of property?

25 AL TAYLOR: In many cases, there is a random

1 sampling component that is included in the
2 investigation, not in all cases though.

3 AUDIENCE MEMBER: I just don't see why --
4 I'm lost. I know it's 22 miles, but we're talking a
5 lot of times just to pick a sample to come up with a
6 plan. I don't understand it. I really don't.

7 AUDIENCE MEMBER: We could all be dead by
8 then.

9 CHUCK NELSON: Well, let's do it one at a
10 time at the microphone, folks, so let Al finish his
11 answer, and if he's finished, if there's another
12 question, let's go to that, please.

13 AL TAYLOR: The sampling plan that was
14 proposed by Dow we did not believe provided the level
15 of information that we needed to make risk management
16 decisions. So we provided our comments back to Dow on
17 that, and they're revising their sampling plans to
18 provide us with plans hopefully that will develop that
19 level of information.

20 AUDIENCE MEMBER: Why didn't you just
21 provide them with a plan?

22 AL TAYLOR: That is a possibility as part of
23 this process. Under their operating license and under
24 the way we do business, regulatory business, Dow -- it
25 is Dow's obligation to provide a remedial

1 investigation workplan. Our obligation is to review
2 that plan and either approve it, provide comments back
3 on it or approve it with modifications. After one
4 round of that, if we don't have an acceptable
5 workplan, we don't believe, will do what we think it
6 needs to do, then we have the opportunity under our
7 operating license, which is basically a contract
8 between us and Dow, to approve it with modifications,
9 basically say, we'll approve it but we're changing
10 these things, changing the things that we don't think
11 are working in the plan, or we could approve just a
12 completely different plan.

13 We would obviously prefer to have Dow develop a
14 plan and collaboratively come to agreement on
15 something that works for us, works for them and
16 satisfies the regulatory requirements. That is the
17 opportunity that they have. Now what is going to be
18 proposed by Dow, and actually they're going to give a
19 presentation here in a couple of minutes, is an
20 example of what they're going to be proposing for
21 Midland and also what they're going to be proposing
22 for the Tittabawassee River to give you a better idea
23 of what's involved here.

24 AUDIENCE MEMBER: It sounds like your goals
25 are different is all.

1 CHUCK NELSON: Sir, would you go to the
2 mike. Don't just do it sitting.

3 AUDIENCE MEMBER: I found that more
4 comfortable. It sounds like your goals are different
5 is all, and I apologize for taking up the time. This
6 is the first meeting I've been to, and I'm just
7 surprised that we're taking all this time to sample
8 soils. I mean --

9 AL TAYLOR: Ideally, this would take less
10 time. We are in complete agreement on that.

11 CHUCK NELSON: Sir, if you have a question,
12 please, go to the mike.

13 AUDIENCE MEMBER: He brought to mind a
14 question here. It's only going to be a comment. You
15 are apparently relying on the Dow's tests to what your
16 investigation here is going to produce, is that what
17 you're saying?

18 AL TAYLOR: Dow's analytical tests?

19 AUDIENCE MEMBER: Yes. Their soil samples,
20 their sediment samples, is that correct?

21 AL TAYLOR: Yes, that's correct.

22 AUDIENCE MEMBER: My concern right now is --

23 AL TAYLOR: Let me finish. Dow will do the
24 testing, but as part of the audit process, we will be
25 collecting split samples at some kind of frequency to

1 insure that we're getting similar results to what Dow
2 is getting for these different tests. So we'll take a
3 split sample at a number of locations, and then at
4 some frequency, you know, 10 percent, 5 percent,
5 whatever it is, we'll submit those samples, and Dow
6 won't know which are samples we're submitting, to
7 independently verify that we're getting -- you know,
8 we're getting the same results.

9 AUDIENCE MEMBER: Okay. My reason for the
10 question is, this is going to be another year that
11 goes by waiting for this to go on, correct, to get
12 their tests, because a statement was made to one of
13 the people in the Priority 1's by Peerless that they
14 weren't going to do near the testing that they were
15 going to do this year as last year. So if they fall
16 short of that expectation, that's another problem on
17 top of what you have issue with. That was a statement
18 made by one of the people I know, so I don't know what
19 to say.

20 AL TAYLOR: I can't respond specifically to
21 that. If the workplans that are currently under
22 development do go through, there will be a great deal
23 of testing going on.

24 AUDIENCE MEMBER: That brings me to the
25 point that there's two different agendas. There's

1 definitely two different agendas.

2 CHUCK NELSON: Are there other questions?

3 AUDIENCE MEMBER: Al, we've repeatedly heard
4 that the Tittabawassee, and I think it's obvious to
5 everyone, is a dynamic system, and you may be
6 testing -- Dow may be testing for sediment and find
7 high levels one day and it's low in another location
8 the next day. Has there been any consideration of
9 both sampling and remediating at the same time? If
10 you find -- if Dow finds hot spots, if Dow finds
11 elevated levels, to remove them before they can be
12 moved? I mean, it just doesn't make sense to spend an
13 exhaustive amount of time sampling and allowing it to
14 stay when you have high levels that have been
15 identified.

16 AL TAYLOR: We agree, and we're hopeful that
17 we can get to a point in this process where you can do
18 exactly that, and it's possible, but we can't --
19 because we're still working on, you know, coming up
20 with an investigation strategy, but it's possible that
21 we'll get to that point. That would be the ideal
22 solution, because as you say, this is a dynamic
23 system, and for sediments in particular, you could get
24 much different concentrations. You know, you get a
25 flood event, and it reshuffles the cards on you, and

1 then you don't have a good idea of where the
2 contamination is. It's not as dynamic in the
3 floodplain. It does change in the floodplain, but you
4 can pretty much go back to the floodplain and get the
5 same concentrations.

6 AUDIENCE MEMBER: Has Dow been cooperative
7 or amendable to that sort of approach to date?

8 AL TAYLOR: I'm reluctant to comment on
9 that. There is a possibility that we can get there,
10 and maybe if you want to --

11 JOHN MUSSER: Yes, I'd comment on that.
12 We've said all along, and you've heard it in this
13 meeting a number of times, if we were able to identify
14 so-called hot spots where we had a deposit that was
15 defined, we would go in and take care of that. If we
16 had that situation, we would not be reluctant to deal
17 with that. The problem has been up to now, with the
18 sampling that's taken place, we haven't identified
19 that kind of a circumstance as yet. Should we do
20 that, again, Dow will follow up and be responsive and
21 take care of that situation in cooperation with DEQ.

22 AUDIENCE MEMBER: What would the trigger
23 level be?

24 JOHN MUSSER: I'm not a remediation expert
25 here, but it's got to be an area that is identified as

1 being a significant deposit, and that would have to be
2 clarified I guess with DEQ what constitutes a hot
3 spot.

4 AUDIENCE MEMBER: And you've indicated this
5 level of cooperation with --

6 JOHN MUSSER: They've heard us say what
7 we've said, right? You've heard it. They've heard
8 it, and I've said it again on tape.

9 AUDIENCE MEMBER: Good. Now we'll just have
10 to watch for the follow through.

11 JOHN MUSSER: Fair enough.

12 CHUCK NELSON: Any other questions before we
13 go to Dow's presentation on Midland area soils?

14 AUDIENCE MEMBER: I'm just interested, I'd
15 like to know how much of the Tittabawassee River is
16 going to be tested for sampling this year?

17 JOHN MUSSER: Can we hold on that for just a
18 second? That's part of our presentation, Michelle.

19 AUDIENCE MEMBER: I'll come back then.

20 CHUCK NELSON: Please, come to the mike if
21 you're going to ask a question.

22 AUDIENCE MEMBER: Simple question, somebody
23 has decided that my residence is a facility. It's a
24 Priority 1 facility. My neighbor who lives right next
25 door to me -- and mine has never been tested, and I

1 didn't have the option to test or have it tested. My
2 neighbor who lives right next door to me just received
3 a packet like -- they're trying to wade through it
4 tonight actually, and I suppose I will end up going
5 over and wading through it with them, but they tell me
6 that they have the option -- they have -- one of the
7 questions is, do we want to have our property tested,
8 and they were wondering what I should answer, and I
9 said, well, if I had had the opportunity, I would have
10 had mine tested. I'm just curious, why is this
11 property, which is supposedly a Priority 2, allowed to
12 be tested but mine was already condemned as a facility
13 and a Priority 1? I didn't have the option of having
14 it tested. Why?

15 AL TAYLOR: One of the notice of deficiency
16 comments that was provided to Dow, and it's actually
17 listed in here, is that we want testing to be
18 conducted this year on the Tittabawassee River
19 floodplain Priority 1 and Priority 2 properties.

20 AUDIENCE MEMBER: What does that mean? Does
21 that mean I do have the option now or I can ask you to
22 come and test my property?

23 AL TAYLOR: What that means is --

24 AUDIENCE MEMBER: My neighbor next door says
25 they have the option.

1 AL TAYLOR: Dow is required under this
2 notice of deficiency and as part of their Priority 2
3 interim response activities to conduct testing on
4 those properties for dioxins and furans.

5 AUDIENCE MEMBER: On Priority 2.

6 AL TAYLOR: And on Priority 1 properties as
7 part of -- that's one of the things that we told Dow
8 as part of the remedial -- as part of the deficiencies
9 that we gave them is that we want Priority 1
10 properties tested to start reducing uncertainty on
11 that designation.

12 AUDIENCE MEMBER: So I called AKT Peerless
13 and let them know that I wanted them to come out and
14 look at my property this year, you know, because I had
15 a flooding back yard, just like I have every year. So
16 should I tell Peerless, because they're the ones that
17 came out, that I want my property tested for dioxin?

18 AL TAYLOR: Dow is going to be proposing is
19 my understanding a number of properties, both Priority
20 1 and Priority 2, for testing. Your property may be
21 one of those properties.

22 AUDIENCE MEMBER: So now you're saying that
23 Dow is going to decide whether I get tested or not, my
24 property gets tested or not, but my neighbor who's got
25 a great big huge packet of information has a chance to

1 say, yeah, we want to get ours tested. Why are they
2 being treated better than me?

3 AL TAYLOR: The Priority 2 package that your
4 neighbor received is for -- like your property got --
5 identification of interim response activities to be
6 conducted there. The Priority 2 properties are a
7 little bit different from Priority 1. Flooding didn't
8 occur all the way up to the house or get within 20
9 feet of the house on the Priority 2 properties.

10 AUDIENCE MEMBER: So it's less likely to
11 have dioxin on it if it didn't get as far.

12 AL TAYLOR: That's possible. It's less
13 likely.

14 AUDIENCE MEMBER: It would be probable as
15 well.

16 AL TAYLOR: It's less likely to have dioxin
17 as close to the house. The property could still have
18 dioxin on it. It just might be further -- or closer
19 to the river. Under the --

20 AUDIENCE MEMBER: Actually, they're not
21 closer to the river. They're right next door to me.
22 They're up a little bit higher than I am because they
23 just built.

24 AL TAYLOR: Well, so they flood less, but
25 the point is, for the NOD, the thing that we were

1 talking about up here, is the DEQ told Dow that this
2 year you need to go out and sample Priority 1 and
3 Priority 2 properties so that we get a better
4 understanding of what those concentrations are on
5 properties like yours.

6 JOHN MUSSER: Al, is it not accurate to say
7 that we haven't identified specific Priority 1 or
8 Priority 2 properties as yet that may be sampled.
9 That it could be that your neighbor isn't included
10 either. We don't know that yet.

11 AUDIENCE MEMBER: You don't know whether
12 they're Priority 1 or Priority --

13 JOHN MUSSER: No. We know whether they're
14 Priority 1 or Priority 2, but we don't know whether or
15 not -- not every Priority 2 will be sampled.

16 AUDIENCE MEMBER: How come they have the
17 option?

18 JOHN MUSSER: They don't.

19 AUDIENCE MEMBER: They don't. Because one
20 of the questions was, do you want to have your
21 property -- so being a simple folk, they thought that
22 meant that if they wanted it sampled that they could
23 have it sampled.

24 JOHN MUSSER: That is not what that means.

25 AUDIENCE MEMBER: That's not what that

1 means. I'll tell them that when I go back.

2 JOHN MUSSER: Have them call us. We'll be

3 happy to explain it to them. They may be. I'm not

4 saying they won't be. They may be as you may be.

5 AUDIENCE MEMBER: They may be or may be not?

6 JOHN MUSSER: That's right. We haven't

7 gotten approval on the agreed sampling plan yet, but

8 there will be Priority 1 and Priority 2 properties

9 that are sampled in this summer and fall season.

10 AUDIENCE MEMBER: Okay. So you're still

11 going to maybe look at -- go back and look at some of

12 the Priority 1's?

13 JOHN MUSSER: Some of the Priority 1's will

14 no doubt be included in the sampling survey.

15 AUDIENCE MEMBER: And they'll be, what,

16 randomly chosen?

17 JOHN MUSSER: They will be strategically

18 chosen.

19 AUDIENCE MEMBER: Strategic as opposed to?

20 JOHN MUSSER: Strategic is part of this

21 overall process that hooks all of these activities

22 together to give us the answers that we need to have.

23 We're going to propose what that sampling process and

24 what that sampling grid should look like, and we're

25 going to ask DEQ to review it and hopefully approve it

1 so we can get on with doing the sampling.

2 AUDIENCE MEMBER: So you mean you're going
3 to kind of take a statistically significant
4 dealy-thing instead of just here and there or whoever
5 whines about it the longest?

6 JOHN MUSSER: That's right.

7 AUDIENCE MEMBER: Oh, okay. That makes
8 sense. That's something a chemical company should do,
9 because that's where the scientists -- I know you have
10 very good scientists also at DEQ, but I know
11 personally we have very good scientists at Dow
12 Chemical, so it makes sense that you would do that.

13 CHUCK NELSON: Ma'am, are you done asking
14 questions?

15 AUDIENCE MEMBER: I believe so. Thank you
16 very much.

17 CHUCK NELSON: Sir, did you have a question?

18 BRENDAN BOYLE: Maybe if I could just add to
19 that, maybe what your neighbor got was an access
20 agreement asking questions for access to allow
21 accessibility on the property. That does not make it
22 automatic.

23 AUDIENCE MEMBER: Oh, now that you mention
24 it -- okay, Brendan, now that you mention it, again, I
25 have another question. The other question that my

1 neighbor had, and not me, was that -- they said that,
2 if we signed this, this means that DEQ can come on our
3 property if they want to. We don't want DEQ to come
4 on our property. So does that mean we can't have any
5 of the other stuff done? We would like to have it
6 sampled, but we don't really want DEQ on our property.
7 I mean, just something like that. Like I said, simple
8 people. You don't see them at this meeting.

9 AL TAYLOR: No, it doesn't mean that.

10 AUDIENCE MEMBER: They just know that
11 they're not sick and they're not dead, live to be 95,
12 and all that stuff that's already been heard.

13 CHUCK NELSON: Ma'am, are you done asking
14 questions, because we need to get these guys up,
15 because they have a 15 minute presentation.

16 AUDIENCE MEMBER: Well, then I'm finished.

17 CHUCK NELSON: Let's go.

18 JOHN MUSSER: I'm looking for Gary Dykes
19 from CH2M Hill. As soon as I get this presentation
20 loaded here, we're going to ask him to talk about the
21 sampling plan for the City of Midland in support of
22 the bioavailability study that's contemplated here
23 sometime in the future. Gary.

24 GARY DYKES: Thank you, John. I'm Gary
25 Dykes. I'm with CH2M Hill. I'm the Project Manager

1 for the work proposed for sampling in the Midland area
2 soils. Basically, what I want to talk to you today,
3 just a few slides here, but I want to give you a
4 general overview of the type of sampling that's being
5 proposed for the Midland area. Basically, I want to
6 go through the study objectives that we've outlined.
7 These are very similar to the objectives that were in
8 the RI workplan in the previous sampling analysis
9 plan. We've been working with DEQ since May 1st to
10 come up with a plan that's acceptable to all parties.
11 I think we've made significant progress along those
12 lines.

13 I also want to talk a little bit about just the
14 overall design of the study as currently proposed.
15 I'll show you the sample layout that is the
16 preliminary and has been reviewed by all parties and
17 seems to have some general consensus, as well as
18 finally tell you a little bit about what the residents
19 of Midland can expect over the next number of months.

20 Basically, I guess I want to talk a little bit
21 just in general about the study objectives. This is
22 proposed as the first phase of work that would be
23 conducted in the City of Midland, and it's primarily
24 designed towards meeting the objectives that you see
25 on the screen, but in general, what we're looking

1 towards doing is collecting information that's going
2 to be used in support of a possible bioavailability
3 study that Dow has proposed, as well as to provide
4 information which will inform the remedial
5 investigation process.

6 In terms of the bioavailability study, there are
7 a couple of bullets here, but basically, what we want
8 to do is collect soil characterization data which can
9 be used in that bioavailability study so the
10 appropriate soils could be selected for use in that
11 study. In addition, a mutually agreed upon aspect of
12 this is to develop a process to work with an
13 independent science advisory panel, ISAP, but this is
14 a process that both Dow and DEQ has agreed is
15 appropriate to help this move along.

16 We have a couple other objectives which are built
17 into the study, one of which is to collect data to
18 help us better understand what other chemicals, in
19 addition to dioxins and furans, may be moved beyond
20 the facility boundary, and Al talked a little earlier
21 about PCOI, and this is information that would feed
22 into that PCOI evaluation, and lastly, for the City of
23 Midland, we have a community -- specific community
24 concerns that we need to address relative to
25 confidentiality issues.

1 So basically, the design approach that we've come
2 up with, like I said, has been modified somewhat from
3 the original RIWP submittal in recognition of the
4 comments received on the NOD's and in discussions with
5 DEQ over the past several months. In the past, we've
6 had several meetings, and I feel like we're all moving
7 in the same direction. We have a few things I think
8 yet to resolve, but we're very confident that we'll
9 get an approvable plan prepared by June 1st.

10 Now as part of the design -- I can tell you these
11 are the elements that we've been working towards that
12 feed into what I'm going to show you in a little bit
13 when you see the sample design -- are the factors
14 which are listed on the screen here. The primary
15 factor that we looked at in coming up with a design
16 was the dispersal mechanism. The City of Midland, as
17 you may recall, is different than what folks have been
18 talking about in the Tittabawassee River. In the City
19 of Midland, what we're really looking at is airborne
20 dispersion from potential sources, multiple sources,
21 across the facility, as a mechanism that will
22 influence our sample design, which you'll see in a few
23 minutes.

24 A few other things that we've taken into
25 consideration are land use, potential exposure,

1 presence of buildings, pavement. That's important to
2 us if we're looking at soil samples for a
3 bioavailability study. We want to avoid those areas
4 that are paved or have manufacturing facilities on
5 them, as well as again, keeping in mind, how we're
6 going to best address the confidentiality issues.

7 What I want to do here real briefly is talk
8 about, in words, the elements of the study design, and
9 my next slide will provide you a picture -- a diagram
10 of the essence of the program. Basically, the
11 elements -- the basic element of the design is a
12 series of radial transects -- basically, you can think
13 of them as spokes on a wheel -- that emanate outwards
14 beginning from the Dow plant. You'll see this on the
15 next diagram in more detail, but basically, that's the
16 approach of looking at primary wind directions, how
17 things will disperse, and then look at those sampling
18 moving from the plant out toward into the community.

19 At each location, what we've identified is what
20 we call a sample box or sample location from which
21 each box will contain multiple properties. From these
22 multiple properties, a sample will be selected and
23 submitted for analyses. Because this particular plan
24 is designed to meet multiple objectives, there are a
25 number of different analyses that are going to be run,

1 which are shown on the next bullet, so I want to go
2 through this briefly, and then I'll get to the
3 diagram. All samples that are collected will be
4 analyzed for dioxins and furans. In addition, we're
5 going to analyze many samples -- basically any sample
6 where we have soil material present for use in the
7 bioavailability study to look at specific soil
8 characteristics important to that study, and then
9 finally, as we talked about earlier, we have the
10 objective of beginning to identify other potential
11 chemicals that may be present in the community, and
12 those locations are focused near the plant, and will
13 be analyzed for a list I think of over 100 chemicals.

14 This is the basic design. If you were familiar
15 with the RI workplan, you'll see this looks familiar
16 to you. It's the same general concept where we have
17 located the spokes on a wheel to a central point in
18 the plant, and then again these transects or spokes
19 extend out various distances into the community. So
20 there's several aspects that I'll talk about on this
21 diagram to help you understand how we kind of came up
22 with the design. One thing that you'll notice is the
23 distance of the spokes. We have basically two
24 different distances. The nearer distance
25 approximately extends about 2 miles distant from the

1 center of the plant, and the farther spokes extend out
2 to 3 miles from the plant approximately. The reason
3 that we have two different distances is that we wanted
4 to focus additional and more information nearer to the
5 plant. Another aspect that you can see here is that
6 if you look radially there are more transects or more
7 spokes on one side than the other, which is the north,
8 northeast direction, and that is simply because that's
9 the primary downwind direction of the facility.

10 Finally, each box in terms of its dimension is
11 nominally on the order of about 300 by 300 feet, but
12 they are being adjusted to accommodate actual site
13 conditions. So the final plan that gets submitted
14 will look very much like this but will be adjusted for
15 specific conditions in the City. Overall, I should
16 say, there's approximately 145 boxes. That's yet to
17 be finalized.

18 What properties owners can expect? Basically,
19 what we're doing right now is working with DEQ through
20 our process of finalizing the sample plan. As soon as
21 we make a submittal, we'll be sending out letters to
22 all property owners that might potentially be sampled
23 as part of this program, and some elements of that
24 mailing will include a license or access agreement,
25 explanations, and we anticipate that these letters

1 would go out in the June time frame following the
2 submittal of the plan to DEQ for final approval. I
3 won't read all the other bullets there. Essentially,
4 what we'll do is get back the signed access property
5 agreements so we can get onto the property, obtain
6 final approval from the DEQ for the plan, have that
7 plan submitted to the Scientific Advisory Panel, make
8 any modifications that might be necessary based upon
9 their input, and then get out to the field.

10 Basically, we're hoping that that will be in the fall
11 of 2006 if we can get the appropriate approvals at the
12 time of the meeting.

13 And the last bullet is basically one parcel per
14 box. I mentioned that previously. Property owners
15 that request the results should receive them within a
16 couple of months, and with that, that concludes my
17 presentation.

18 CHUCK NELSON: Do you have a question? Go
19 ahead.

20 AUDIENCE MEMBER: I'm still not clear on how
21 this would work. Within a box, there might be several
22 particles that could be sampled, and then so are there
23 multiple samples going to be taken within a box and
24 then only maybe one of those analyzed? So if a soil
25 sample is taken from a parcel, that one isn't

1 necessarily going to be taken all the way for
2 analysis? So someone might have their property
3 sampled but not necessarily analyzed? Is that how it
4 works?

5 GARY DYKES: You're very close on how that
6 works. I'll explain it and I'll kind of repeat it
7 back a little bit, but it won't be much different from
8 what you just stated. Fundamentally, we'll have a
9 box. We'll obtain access agreements from that box.
10 What we've agreed to is that we're targeting
11 something -- we would like to average about nine or so
12 samples -- excuse me, property owners per box, if
13 possible. It's not always possible because sometimes
14 you only have one land owner, like Dow Chemical, that
15 owns all the property. From that, we will have
16 selected five samples, and those five samples would
17 have soils collected and held, and then one of those
18 would be sent off for analysis. The whole purpose of
19 this procedure is the issue of addressing
20 confidentiality for the owners results.

21 AUDIENCE MEMBER: Can you take a slide back
22 to the spokes? Did you come from a center or did
23 you -- how did you determine the spokes on there?

24 GARY DYKES: The way the spokes were
25 determined is that we looked at multiple potential

1 sources within the facility, such as the incinerator
2 complex, the power plant, the ponds, but basically,
3 you know, we just needed to find a center somewhere to
4 start extending the spokes, but the program is
5 designed to basically capture any emission that is
6 from an airborne source.

7 AUDIENCE MEMBER: That's what I'm wondering,
8 if you got an 803 burner or you found some plant
9 within the plant? That's what I was wondering.

10 GARY DYKES: I think the central point is
11 not located -- was not specifically located on a
12 building on purpose.

13 AUDIENCE MEMBER: When Al Young talked at a
14 Matrix sometime back, he said the -- and these were
15 Texas tests for dioxin. Typically, they are found 5
16 to 15 centimeters below the surface in the soil. How
17 deep will your boxes go? Where do you anticipate
18 finding most of your contamination?

19 GARY DYKES: Based on the aerial deposition
20 model, we're anticipating that the primary deposition,
21 in other words, when it falls out, will be in the
22 upper inch or so of the soil. So the study is
23 designed where all samples will be collected within
24 the 0 to 1 inch range, and then for some additional
25 samples, there will be somewhat of a deeper range, 5

1 to 6 inch range. Again, this is the part of the first
2 phase we're working on.

3 AUDIENCE MEMBER: Can you give us some more
4 detail on the ISAP, the advisory panel? Specifically,
5 when will they be engaged on this study, and this is
6 the context I'm asking the question, and
7 Dr. Garabrandt's here, and with the U of M study, it's
8 my recall that when the protocols for the study were
9 being developed they were opened up for review by the
10 public, not that lay people can necessarily add a lot
11 to scientist's established protocol, but I think in
12 reference to studies having credibility that's a very
13 good thing to do. So I understand Dow and DEQ are
14 working out details of this study. When is the
15 advisory panel going to be engaged, or are they
16 engaged now, so they can comment and be part of
17 establishing a protocol?

18 GARY DYKES: That question basically gets
19 at, what can I tell you about the Scientific Advisory
20 Panel. Basically, the answer there is that it's a
21 work in progress right now, and I believe -- I'm
22 looking at AI to verify -- that the panel I don't
23 believe has been engaged at this point in time.

24 AL TAYLOR: The Scientific Advisory Panel
25 has been engaged. They've been shown drafts of at

1 least the organization TERA, Toxicology Excellence and
2 Risk Assessment I think is what it stands for, is
3 going to be the organization who's going to bring
4 together the panel of scientific experts for the ISAP.
5 Once this plan is put together, it will be part of the
6 ISAP approval process. We want them to make sure that
7 they're comfortable with this plan and the basis for
8 the plan before we go further into the bioavailability
9 process -- study process.

10 GARY DYKES: I stand corrected.

11 CHUCK NELSON: Just let me note that I'd
12 like to do one more question and then we'll get on to
13 the GeoMorph presentation. I want to stick with the
14 schedule.

15 AUDIENCE MEMBER: Thank you. This is very
16 brief, but I believe in doing things right the first
17 time, and I'd like to know why we are concentrating
18 going north when the prevailing winds are not that
19 direction?

20 GARY DYKES: I'm not sure I heard the entire
21 question.

22 AUDIENCE MEMBER: Why is the concentration
23 going north, the samples, when the prevailing winds
24 aren't, and the second part of this question is, what
25 statistical analysis are you going to do or is this

1 just raw data?

2 GARY DYKES: That's a two-part question.

3 The first question, I'm just going to repeat it so I

4 get it right, is why are we focusing samples I think

5 to the north. The reason we're sampling up in that

6 direction is that this is -- let me first emphasis,

7 this is the first phase of work we're doing, and the

8 sample design is based upon our understanding of the

9 prevailing wind directions and the likely distribution

10 patterns that we see from aerial deposition. The

11 second part of the question, I'm sorry, was

12 statistical methods. We will be taking a look at the

13 statistical evaluations a part of the overall process,

14 yes.

15 CHUCK NELSON: Okay. Thank you. We'll have

16 more opportunity for questions after this next

17 presentation. Our next presentation is on the

18 GeoMorph proposal for the Tittabawassee River.

19 JOHN MUSSER: While I set this up, just a

20 quick comment to clarify. What you just heard was a

21 pre-RI sampling process that is a first phase effort.

22 There will no doubt be additional sampling activities

23 undertaken to both look at the nature and extent of

24 the dioxin or furan contamination in the soils in

25 Midland and even additional sampling perhaps with

1 respect to the other chemicals that may be also in the
2 soils.

3 As I begin here, I want to just kind of put some
4 things in perspective for you, because you've heard
5 about remedial investigation workplans that were
6 submitted earlier and some concerns that were
7 expressed by DEQ and EPA and some members of the
8 community, and now we've got some new plans that are
9 being put forward that we're working in collaboration
10 with DEQ on to insure that we get it right the first
11 time this time.

12 At the end of December, as you've heard, when Dow
13 submitted its remedial investigation workplans, we
14 proposed a phased modeling approach to determine the
15 nature and the extent of furans and dioxins and other
16 chemicals in the Tittabawassee River and floodplain,
17 and under that approach, we're looking at developing
18 or taking a number of samples that would be considered
19 dependent on what was found during each phase of the
20 modeling. So you would do one set of samples, add
21 that to what you've already known from other sampling
22 activities that had taken place previously, make some
23 judgements about what additional sampling and where it
24 needed to be taken would be done. This was more of a
25 modeling type of approach, also based on sampling, but

1 it was a modeling approach in the first order.

2 What we've proposed in response to the NOD's is I

3 think addressing -- we do believe addressing the

4 expressed interests that DEQ and EPA have expressed

5 about being able to evaluate more of the samples and

6 data much earlier in the process. The approach that

7 ATS or Ann Arbor Technical Services is going to

8 discuss this evening we believe fills this need while

9 still streamlining the process for determining the

10 nature and the extent of dioxins and furans and other

11 potential chemicals in and along the river. They do

12 this by mapping the Geomorphic features, and when I

13 say Geomorphic, think river landscape. That's the

14 easiest way I can say that to you. You'll hear a lot

15 more about it, and I hope they do a better job than I

16 am explaining what that is, so just think river

17 landforms and river landscape is the study that we're

18 undertaking here.

19 Once these features in the river are identified,

20 however, it will facilitate efficient sampling. That

21 is, it will tell us where we should sample and how

22 many samples and where we should sample, and it will

23 help us determine the concentration levels and allow

24 us with confidence to predict where we might see other

25 contaminants at the same levels in the same kind of

1 landforms.

2 So with that, I hope I didn't confuse you, but I
3 did feel it was important to put some additional
4 perspective on the table here. Tonight you're going
5 to hear from two representatives from Ann Arbor
6 Technical Services, ATS for short. The Project
7 Manager from ATS for this project is Mr. Peter Simon,
8 and Peter is the Operations Manager for Ann Arbor
9 Technical Services. He has 16 years of experience in
10 the field of environmental science and chemistry and
11 as well specializing in projects involving chemicals
12 or chemical processes, hazardous waste management,
13 remedial investigation and enclosure and remediation
14 activities.

15 His associate, David Richardson, is a so-called
16 fluvial geomorphologist. You'll hear more about that
17 again. This is the study of river landscapes.
18 Mr. Richardson, or Dave as he prefers to be called,
19 has 18 years of experience in the environmental
20 consulting industry. His area of subexpertise
21 includes fluvial geomorphology, wetland evolution,
22 mitigating program and project management, and soil
23 sediment characterization and remediation. Both Peter
24 and Dave are co-founders of the technology that we're
25 going to be discussing, the GeoMorph technology. So

1 without further delay, Peter, and I think Dave will be
2 joining him for the Q and A portion.

3 PETER SIMON: Good evening. My name is
4 Peter Simon. I'm the Project Manager and Senior
5 Scientist with Ann Arbor Technical Services. I'm not
6 a very good public speaker. I'm a good scientist, so
7 bear with me. I'm trying to make this as painless for
8 you as possible.

9 I'd like to thank you all, first of all, for
10 coming out. We've got a pretty exciting or what we
11 feel is a pretty exciting process that we've
12 developed. Dave and I and my oldest brother, Phil
13 Simon, who is also a co-founder of this process,
14 started developing this process on a project in
15 Wisconsin which had a very similar set of political
16 and environmental concerns. So what we're going to do
17 today is give you an overview of that process.
18 There's no possible way we could in time allotted do a
19 detailed discussion of that process, but hopefully,
20 we'll hit on at least the major aspects of that
21 process, so you can come away with a general
22 understanding of the strength of it.

23 My overall objective is again to provide you with
24 an overview of the GeoMorph process. In addition to
25 that, we're going to review the study areas that we've

1 carved out for this year based on what we believe can
2 be completed and look at the implementation for this
3 process for both the Tittabawassee and the Saginaw
4 River.

5 What is GeoMorph? Well, it's a funny name, but
6 it's a term that we've coined that comes out of the
7 word geomorphology, which is landforms, and John had
8 mentioned fluvial, which is really water. Fluvial
9 geomorphology is the study of landforms and how they
10 are either created or modified by moving bodies of
11 water. The Tittabawassee River is a great example of
12 that. It's a very complicated watershed, as most of
13 you know. In general, GeoMorph is an information rich
14 process used to identify sediment deposition and
15 erosion areas based on river characteristics. As
16 we'll get into this presentation a little bit more,
17 we've already started doing some initial surface
18 mapping on the Tittabawassee River, in particular
19 focusing on the upper 6 miles.

20 To give you some idea of what we're talking about
21 in terms of complexity, in the upper 6 miles, we've
22 already identified 19 geomorphologic regions. The
23 important part about geomorphologic regions is it
24 establishes the ability to have some idea of the
25 surface similarities within that reach. A new reach

1 is established everytime there is something that's
2 introduced into the water body to change the flow
3 characteristics. It could be a bridge. It could be a
4 culvert, but it's something that changes the water
5 flow through that particular reach.

6 The goal of geomorph is to identify like sediment
7 or soil deposition areas, again trying to understand,
8 and if I can get you to come away with anything, it is
9 deposition and erosion, deposition and erosion
10 surface, and the stability -- relative stability of
11 those surfaces, and we focused our sampling efforts to
12 characterize these areas or patterns. I think
13 somebody earlier mentioned the concept of patterns.
14 The river evolves and the landscape is created in
15 terms of patterns. You need to understand those
16 patterns, because just sampling here and there without
17 understanding the patterns, you're not really going to
18 understand what information is coming out of your
19 analysis. Again, it's about deposition and erosion.

20 Geomorph site characterization concepts. It's a
21 Geomorphic based analysis that classifies contaminant
22 areas. We're going to have some samples of some of
23 the work we've already completed in terms of mapping
24 Geomorphic surfaces, and we'll show you the complexity
25 of erode terraces and intermediate terraces and how

1 they relate to each other. One of the things that is
2 important in accelerating this program and really
3 moving it forward is bringing in near realtime
4 analytics or fully validated analytics. The reason
5 for that is you need to be able to make decisions as
6 you're moving the process forward. Making decisions
7 six months after you're out of the field doesn't
8 accelerate the process. Our whole goal is to
9 accelerate the process, do it right, I think somebody
10 else said, the first time.

11 This is kind of a simple version of how we begin
12 to understand the river architecture or the river
13 landscape. These are what we refer to as geomorphic
14 layers. We start really at the foundation level,
15 understanding the elevation information that's
16 available. Typically, we want to use 1-foot
17 increments. That's what provides you with about a
18 quarter of a foot vertical access. On top of that, we
19 begin building layers, layers in terms of reaches or
20 degree of meandering. We look at man-made influences,
21 because man-made influences can convert deposition
22 areas into erosion areas. So something that
23 historically had been stable there, now might not be
24 so stable if a bridge had been insized 10 years ago or
25 15 years ago. You may now have an ongoing source of

1 potential contaminants.

2 The important thing to understand here is that
3 these layers are developed independently. We use
4 strict science. Each of these foundational
5 elements -- and we're really good at keeping our
6 fluvial team and geomorphology team separate. They
7 really want to see the chemistry information. They
8 really want to see the chemical data. Well, if
9 they've done their homework in understanding the
10 landscape of the river system, the chemistry
11 information supports their conclusions. So our
12 process is developed independently, and at the end, we
13 lay these things down, these layers down, and areas
14 where the results or the conclusions are somewhat
15 misleading or inclusive, you have to go back and
16 answer why. The laws of physics and chemistry work on
17 river systems, too. So it's important to develop
18 these things scientifically sound and in an
19 independent way.

20 Process benefits, the overall benefits really
21 allow us to make better informed decisions. It's a
22 systematic approach. It allows for the precise
23 location of where the contaminants are based on
24 deposition and erosion. It also allows us to
25 understand the relative stability of those things.

1 Again, this whole thing is result driven. We don't
2 want to take 5 years, 10 years, 20 years, 50 years.
3 If you understand the science, you can understand
4 where the materials are and then coming up with a
5 solution on how to address it.

6 GeoMorph experience, as I had mentioned to you,
7 the entities on this table or on this slide are
8 entities that have been involved and have overviewed
9 the process as we have developed it for a project in
10 the State of Wisconsin. There's two projects actually
11 that we've worked on and gotten several approvals.
12 Again, I'd be more than happy to put you in touch with
13 any of the people that were involved in various
14 aspects of the project, whether it be USEPA, Wisconsin
15 DNR, Tecumseh Products, which was a company which
16 ended up funding most of the efforts we did. The last
17 two, in terms of AIG and Consent Order, that's
18 something probably beyond this presentation, but this
19 project was actually underwritten and the whole
20 process was incorporated into a concener that was
21 agreed upon between the insurance agency and the State
22 of Wisconsin, so we've got some track record here.

23 The Tittabawassee and upper Saginaw River
24 GeoMorph study areas. We've identified right now --
25 for the purposes of timing, we've identified the upper

1 6 miles. We initially were brought on board and got
2 the authorization to, yes, this is the way we want to
3 go about April 1st. Well, we're not really far down
4 the road. So based on what is doable this year, we've
5 identified an area called the upper 6 miles of the
6 Tittabawassee River, the lower 16 miles and then the
7 upper 6 miles of the Saginaw River. The reason why
8 we've broken those out is because there's going to be
9 some elements of the layers that we will be developing
10 for the entire project, all 28 miles, but the upper
11 6 miles, we will complete a detailed site
12 characterization, such that it will establish the
13 basis for understanding or evaluating corrective
14 action strategies. That's our goal for the upper
15 6 miles. Meanwhile, those foundation layers that I
16 referred to in kind of that simplistic chart are going
17 to be developed for the remaining 22 miles.

18 This is a figure here. This is an actual
19 overview of the Tittabawassee River, Reach M in the
20 area of Smith's Crossing. On April 21st -- or the
21 week of April 17th through April 21st, our team was
22 out in the field doing the preliminary geomorphic
23 surface mapping. We're trying to map the landscape,
24 the terraces, the levies, the low terraces, the
25 intermediary terraces, for the upper 6 miles. What

1 you see here on the left is an example of -- or the
2 results of that process. You can see here there's
3 areas identified down here, here, and you can see
4 there's different colorations, lime green, light
5 green, blue, dark blue, even yellow. Somebody had
6 talked about cut banks or erosion scars. That entire
7 length of that river right here along this side, the
8 yellow area, is a cut bank. That's an erosion scar
9 where there's material being deposited or introduced
10 or reintroduced into the Tittabawassee River. It's
11 important to know where that's at. Historically,
12 based on where that bridge was, this actually was a
13 deposition area potentially many, many, many years ago
14 for that river where that bridge, Smith's Crossing
15 Bridge, was introduced and changed the flow
16 characteristics in this portion of the river. One of
17 the fundamental portions or one of the layers that I
18 kind of glossed over in trying to understand or peel
19 back the last 10, 20, 30, 50 or 100 years of evolution
20 of this river based on geomorphology or
21 geomorphologic, you need to understand what the
22 man-made influences are.

23 We do a comprehensive aerial photograph analysis,
24 typically trying to look at something in the range of
25 one photograph that covers this area per decade, so

1 you can see by decade, by decade, by decade basis what
2 modifications there have been to the river, whether
3 they be bridges, whether they be dams, whether they
4 be trees falling in. The level of detail really
5 results out of an analysis of the complexity of the
6 river system. If you're dealing with a small river,
7 trees falling down into the river is an important
8 thing, but something the size of the Tittabawassee
9 River, a 6-inch tree is probably not that important,
10 but a bridge the size of Smith's Crossing definitely
11 is.

12 The items listed on the right, high resolution
13 topographic mapping and several other things, those
14 are the layers that have already been completed for
15 the upper 6 miles. These are not things that need to
16 be completed. Ultimately, at the end, developing
17 these layers establishes a basis for beginning to
18 identify where you want to collect samples, under
19 trying -- again trying to understand where the
20 materials are based on the deposition and erosion
21 aspects of the river system.

22 Ultimately, where you end up at the end of the
23 process or at the end of the detailed site
24 characterization is here. I brought in a couple of
25 mapping examples to show you or illustrate, because

1 obviously, we haven't completed the detailed site
2 characterization for the upper 6 miles. In six
3 months, we'll show you -- or by the end of the year I
4 should say, and I will show you in a schedule, this is
5 the kind of contaminant distribution map that will be
6 generated for the upper 6 miles of the Tittabawassee
7 River.

8 What you see here are a variety of colors and you
9 also see a variety of what we refer to as polygons.
10 Those polygons represent features, geomorphic
11 surfaces, and there is a pattern associated with
12 those, and on top of that is the concentration
13 information that is generated based on the detailed
14 site characterization. Green being generally low or
15 good. Yellow being somewhere in the middle. Red and
16 purple being high or high concentrations. You can see
17 in areas up here you've got some red and purple.
18 Generally, this is all yellow, those are floodplain
19 areas, and Dave Richardson will do a far better job
20 describing the intermediate and low terrace
21 distribution, because he spent a good chunk of his
22 life studying this river. Where we will end up being
23 in six months is having a product similar to this
24 which will provide a contaminant distribution map for
25 the upper 6 miles. It will present the concentration

1 information based on those geomorphic features or
2 surfaces and will allow us to be able to establish or
3 begin evaluating corrective action strategies.

4 Development of the GeoMorph workplans, we've
5 already mentioned this. The GeoMorph team, Dow and
6 DEQ are using a collaborative process to build
7 GeoMorph consensus workplans. What does that mean?
8 Well, that means during the week of April 17th we
9 invited the DEQ to participate, to the extent that
10 they needed to or felt comfortable, in our geomorphic
11 surface mapping. We will be doing that throughout the
12 entire process. While we are out doing our detailed
13 site characterization, we want them to participate, to
14 the extent they can, in our program. In the meantime,
15 over the next 30 days, we will be developing a
16 consensus or a collaborative -- we will be using a
17 collaborative process to come together with a sampling
18 strategy to identify those geomorphic surfaces that
19 meets the acceptability of the agency, as well as Dow.

20 Our goal is to submit that workplan by June 1st.
21 I think we've got commitment from everyone that is
22 working on the team that that is a manageable and
23 doable effort. So we're very excited about that.
24 That's a process that's familiar to us. That's a
25 process we used on the examples I showed you earlier.

1 Again, the sampling and analysis plan will be
2 submitted to MDEQ on June 1st of 2006. The pictures
3 over on the left-hand side are actually pictures of
4 the field activity that we conducted the week of the
5 17th. The DEQ participated in part of that on
6 April 21st, going down the river, evaluating, looking
7 at erosion scars, looking at the surface mapping and
8 the work that Dave was doing. Those pictures on the
9 left-hand side are just kind of a bookmark of that
10 activity.

11 Upper Tittabawassee River 2006 schedule. On
12 March 31st is when we actually commenced on this
13 project. It wasn't April 1st. It was March 31st.
14 Shortly thereafter, we were approved and got
15 authorized to conduct the first field activity or the
16 geomorphic survey. That was -- I showed you an
17 example of that part for Reach M or in the Smith's
18 Crossing area. June 21st, MDEQ site visit was
19 conducted. June 1st, and from now until June 1st, we
20 have a series of working sessions that we will be
21 working hand-in-hand with the agencies on coming up
22 with a consensus sampling and analysis plan that we
23 will be submitting on June 1st. We have a target in
24 order to be in the field by July 10th to commence the
25 actual sampling activities for the upper 6 miles and a

1 goal of having our approval back by June 30th. We
2 have a two-week wrap up effort. It's a substantial
3 effort when we have something in the neighborhood of
4 four to six, two-man crews doing the detailed site
5 characterization. That activity is going to run
6 through October. It's not a small effort. It's a
7 very substantial effort, again two, four to five man
8 crews for a period of three and a half months. We'll
9 be working ten days on, four days off is the current
10 plan that we will be working to get this activity
11 completed this year.

12 December 31st, 2006 we will actually complete the
13 GeoMorph foundation layers. Now I'll ask you to go
14 back and think about what I was talking about. We've
15 broken this up, a detailed site characterization for
16 the upper six. In anticipation of future work, we are
17 going to be developing the foundation layers for the
18 remaining 22, which incorporates the upper 6 miles of
19 the Saginaw River. February 1st, 2007, we will be
20 submitting a GeoMorph site characterization report.
21 Those figures that I showed you as an example of the
22 Hayton project that indicated the concentration and so
23 forth, that's kind of the end point of the detailed
24 site characterization. It's a very lengthy and very
25 comprehensive report of all of the field sampling

1 activities and activities that we conducted this year
2 to do the detailed site characterization for the upper
3 6 miles of the Tittabawassee River.

4 In graphic form, to give you some idea again
5 looking back at those layers, on the left-hand side,
6 these are the investigation activities or the process
7 layers. Along the X access, or along the bottom,
8 these are the river breakdown as I've outlined them,
9 the upper 6 miles, the lower 16, and the upper 6 miles
10 of the Saginaw River. This represents the foundation
11 layer for the upper 6 miles. That represents the
12 foundation layers for the remainder of the project, as
13 well as the detailed site characterization for the
14 upper 6 miles of the Tittabawassee River. Where that
15 puts us at the end of calendar year 2006, based on the
16 proposed -- the current proposed schedule, is to have
17 a basis for evaluating corrective action strategies
18 for the upper 6 miles of the Tittabawassee River going
19 into 2007. That's a pretty powerful thing, given the
20 time frame that we have undertaken starting April 1st,
21 and have a detailed site characterization of 6 miles
22 of the river, that's a pretty monumental effort.

23 CHUCK NELSON: Are there questions on this
24 presentation?

25 AUDIENCE MEMBER: So what drives the

1 GeoMorph SAP? What's going to drive the locations
2 where you do the sampling? And then also, how is this
3 going to be used on the lower 16, and when is that
4 going to be -- what happens in '07?

5 PETER SIMON: Sure, if I understand the
6 question, the first question is, what's going to drive
7 the sample selection? The geomorphic analysis or the
8 geomorphic surfaces that we've identified, and maybe I
9 can go back to the slide that highlights that, and
10 Dave, maybe you want to speak to this.

11 DAVE RICHARDSON: What we've done is we've
12 mapped the different geomorphic surfaces along the
13 river on both sides, and as Peter pointed out, the
14 yellow are the eroding scars. Each of those different
15 colors show a different geomorphic surface. Each of
16 the geomorphic surfaces will react differently within
17 a reach. You're going to have different levels of
18 deposition or erosion on the different surfaces.
19 Basically, if you think about them, they're almost
20 like little steps. They've been formed by the river
21 over time, and each step, depending on how high or low
22 it is above the river, will have different
23 depositional characteristics, and so what we do is we
24 look at those, and we make sure that we catch a sample
25 on each of those surfaces, so we're characterizing

1 within that reach, within that length of stream that's
2 similar, the different depositional and erosional
3 patterns that we see.

4 In the end, you have to understand the river.
5 You have to understand how it's deposited over time,
6 in particular the last 100 years, that accounts for
7 the release history. So by doing this mapping, we
8 then can make decisions about how you select sample
9 locations. When we sample, we sample the sediment and
10 the soil, and we go through what is depositional layer
11 and down into what we call parent material, or
12 material that is not impacted -- that hasn't been
13 impacted by the river in the last 100 years, and with
14 that then, so we are able to determine horizontally
15 away from the river and vertically where the extent of
16 contamination, and so by doing that and by doing that
17 quick turnaround analysis that Peter was talking
18 about, we're able to do that in the field. When we
19 leave the field at the end of October, we're going to
20 know exactly laterally and vertically within this
21 upper 6 miles of where the contamination is. So
22 that's -- so the answer to the question is, we're
23 basing it on the geomorphic surfaces, and then we
24 select our sample locations based on that so we're
25 sure that we're understanding every single one of

1 those surfaces.

2 CHUCK NELSON: Additional questions? Did
3 you want to follow up here and then --

4 AUDIENCE MEMBER: I had a part two on that,
5 that I already stated, and how does this apply to the
6 lower 16 miles?

7 PETER SIMON: We're developing the rationale
8 or the foundation layers for the lower 16 for future
9 reference. This year we just don't have enough
10 manpower and time to be able to do that, but moving
11 forward, it's conceivable based on -- there's going to
12 be some things that we'll also learn about the
13 Tittabawassee River. Each river behaves differently,
14 and this is a very complicated watershed. Nobody
15 should misunderestimate it. So next year, it's
16 conceivable there may be another portion, based on the
17 availability and the time frame, that we could do a
18 detailed characterization for the next portion.

19 JOHN MUSSER: Based on this though, there is
20 a fair amount of work in terms of, you can see that
21 six out of nine, or how many different layers here,
22 are we accomplishing in the lower 16 and the upper
23 six miles of the Saginaw River.

24 AUDIENCE MEMBER: I'm having trouble reading
25 the top three items that are not being done right now

1 for the lower 16.

2 PETER SIMON: That's the confirmation of the
3 geomorphic surface mapping. We'll be doing the desk
4 top analysis, the detailed site characterization,
5 which is the three month effort for the 6 miles. So
6 if you project that down 16 miles, you can see that's
7 a very substantial effort. The existing conditions,
8 surface weighted concentration map, that is that
9 graphic presentation that we showed you that was from
10 an example project. That gives you the projection of
11 the contaminant distribution. That really is the
12 culmination of the site characterization activities
13 that allows you to be able to say, okay, this is where
14 the materials are, what is our strategy, and you go to
15 the rest of each individual surfaces.

16 DAVE RICHARDSON: So by doing the mapping
17 of the foundation layers in the lower 16 miles of the
18 Tittabawassee River, we're then going to know based on
19 that how complex the river is. We know there are a
20 couple of areas further apart where the floodplain is
21 much wider, and so then we're able to determine what
22 we can get done in say 2007, 2008, whatever that is.
23 We're going to accelerate it as quickly as we can.
24 The river is actually going to help tell us what we
25 can take on each year.

1 AUDIENCE MEMBER: So this is leaning toward
2 the ultimate clean up plan.

3 DAVE RICHARDSON: Yes. In fact, at the
4 end -- just to be clear, at the end of 2006 and into
5 2007, there will be a corrective action plan for the
6 first 6 miles, and then we'll continue on with this
7 same process moving downstream from there for next
8 year.

9 AUDIENCE MEMBER: So conceivably, by the end
10 of 2007, the middle of 2008, we could know what we're
11 going to do with the whole river.

12 DAVE RICHARDSON: It's possible. We're
13 going to let the complexity of the river tell us that,
14 but we're going to --

15 PETER SIMON: This year is a big year. We
16 need to get through the first 6 miles, and that will
17 give us some indication of how quickly the rest of the
18 process can go.

19 JOHN MUSSER: Let's make sure we get our
20 expectations right here, too, because that's a very
21 aggressive schedule that you're laying out here.

22 PETER SIMON: Absolutely.

23 JOHN MUSSER: And we've got a lot of
24 questions and not a lot of answers at this point yet
25 to get. I think the important thing is we will move

1 as fast as we possibly can move and with the approval
2 of DEQ. I mean, we have to have the consensus, and
3 we'll do as much as we possibly can do, but I think
4 the best we can expect is what you've seen here. This
5 is the immediate future. We think we can accomplish
6 this much. This is the 2006 game plan. It
7 accomplishes a lot, and it puts us in a position with
8 respect to the first 6 miles to say, okay, now we've
9 got the information base to start looking at -- not
10 necessarily to have the plan defined, but we can start
11 looking at the options with some confidence that we
12 know what will be a better resolution than something
13 else. So we're going to be much further along in the
14 process in terms of getting at a final resolution than
15 where we are today.

16 AUDIENCE MEMBER: You know, I'm the only one
17 that used the word cleanup today. There was address
18 and resolution and other words. I'm curious about
19 that.

20 PETER SIMON: You can -- you know, the basis
21 for cleanup strategies, you could use that.
22 Corrective action cleanup. Cleanup implies certain
23 things. If there is low contamination or no
24 contamination in certain areas, nothing may need to be
25 done there. So you can use that interchangeably.

1 Evaluating cleanup strategies, corrective action
2 strategies, we'll have a detailed characterization to
3 understand where it is and where it isn't.

4 JOHN MUSSER: Also, keep in mind that
5 there's another very significant component here, and
6 there may be others, but the one that comes to mind
7 most vividly is the human health risk assessment.
8 That's going to be a critical component, coupled with
9 this work, that's going to help us understand the
10 situation so we can make good decisions about what we
11 should and shouldn't be doing to really resolve
12 situations that exist. So that work is not going to
13 be done. You heard the discussion about the plan
14 hopefully will be -- we will be submitting a plan for
15 the human health risk assessment by year-end, and
16 hopefully, that will be approved shortly thereafter so
17 we can start implementing that, but that's not likely
18 to be done in 2007.

19 AUDIENCE MEMBER: How long?

20 JOHN MUSSER: I don't know the answer to
21 that. I'm going to ask my experts to jump in on that,
22 because it depends on a lot of factors.

23 AUDIENCE MEMBER: It sure does, and you're
24 giving us a whole hell of a lot of them out here.

25 JOHN MUSSER: Good.

1 AUDIENCE MEMBER: Wait, can I talk once?

2 CHUCK NELSON: No. Hang on, sir. He has
3 the mike, and he took the time to get up. Go ahead,
4 sir.

5 AUDIENCE MEMBER: John Wiltse, Michigan United
6 Conservative Group, Michigan Resource
7 Stewards. You folks have already touched on what I
8 wanted to raise here is a time frame. You know,
9 everybody's realized that there's been a lot of foot
10 dragging on this issue for a number of years now, and
11 we've got a one-year outlook for the upper 6 miles of
12 the Tittabawassee. Then we've got the lower
13 Tittabawassee, the Saginaw. It looks to me like
14 this -- I realize that what the Dow spokesman
15 mentioned on human health concerns, and I was happy to
16 see breast milk in newborns and so on in the brochure
17 here that hasn't been addressed before. Is there
18 anything you folks can add on our concerns about a
19 time frame, and does the DEQ give them a blank check
20 to drag it, if it looks like they're dragging it?
21 Thank you.

22 JIM SYGO: I think, as I mentioned earlier,
23 scheduling is certainly one of the concerns that we
24 still have in our preliminary review of the materials
25 that we've had. I think we're encouraged by the

1 amount of characterization that would be provided
2 within the floodplains by this process, as well as the
3 sediments themselves, and I think all of that
4 information is needed, but you know, before we move
5 forward, we're certainly going to have to evaluate the
6 schedule. The aspects of the human health risk
7 assessment are important aspects that need to be done.
8 The schedule that's been proposed, you know, we need
9 to look at ways to accelerate those so that we can
10 complete those sooner as opposed to later.

11 AUDIENCE MEMBER: Thank you, Jim. I think
12 that's a big step forward.

13 CHUCK NELSON: Now we're a little bit behind
14 schedule. I'd like to do just this one more. We've
15 got a short report from Dow, and then we'll open it
16 up, and the rest of the time will be you folks. Sir,
17 go ahead.

18 AUDIENCE MEMBER: He made a statement that
19 they're going to do testing, they're going designate
20 certain areas to test. I assumed since you're only
21 looking at addressing the first 6 miles you're not
22 joining with AKT Peerless, and if not, why? There's a
23 wealth of people right here to put to use. If they
24 want to come in my yard and maybe just take a sunbath,
25 I don't know, because I'm in the last 16 miles. Do

1 you have an answer to that, why you're not joining
2 forces and coordinating your efforts?

3 PETER SIMON: AKT has an effort that they
4 will be undertaking this year. In terms of doing a
5 detailed site characterization, there's going to be
6 some collaboration going on between AKT and our field
7 personnel. Based on our experience, and we've proven,
8 there's a fair amount of experience that needs to be
9 brought to the table in doing the field sampling
10 effort doing using a geomorphic style investigation.
11 Dave Richardson is a fluvial geomorphologist. He's
12 been studying fluvial geomorphology for the better
13 part of his professional career. Bringing people in
14 because they are warm bodies and not properly
15 experienced isn't going to get us any further down the
16 road.

17 AUDIENCE MEMBER: So their warm bodies are
18 not experienced?

19 PETER SIMON: They are not professionally
20 trained in the study of fluvial geomorphology.

21 AUDIENCE MEMBER: So, what, AKT Peerless is
22 pointless?

23 PETER SIMON: No.

24 JOHN MUSSER: They're different two things,
25 sir. AKT Peerless is strictly involved in helping

1 with the administration of the interim actions, okay.
2 These are actions taken to minimize exposure while we
3 figure out what needs to be done beyond that, if
4 anything. That's what the rest of this is about.

5 AUDIENCE MEMBER: Again, why don't you take
6 advantage of what they're going to do? They said they
7 will or they can --

8 JOHN MUSSER: In fact, that's the case.

9 AUDIENCE MEMBER: There's no reason you
10 can't use their tests.

11 JOHN MUSSER: In fact, that's the case. In
12 terms of the sampling activities, part of what we do
13 as part of the interim actions will also feed this
14 research.

15 AUDIENCE MEMBER: Then you should be able to
16 have information a lot further down the river than
17 just 6 miles.

18 JOHN MUSSER: Well, we will have some
19 information. We won't have the full picture is what
20 we're saying.

21 AUDIENCE MEMBER: This is the first I heard
22 you got two separate entities.

23 JOHN MUSSER: We are coordinating those, but
24 not necessarily exactly the way you're suggesting they
25 should be coordinated.

1 CHUCK NELSON: Okay. Let's move on to our
2 next presentation, that's Priority 1 flood response
3 and Priority 2 interim response activities. John.

4 JOHN MUSSER: Since this is Dr. Denny's area
5 of expertise and responsibility, I shall turn the
6 program over to her.

7 PRISCILLA DENNEY: Good evening. My name is
8 Priscilla Denny, and I am the Interim Response
9 Activities Manager for the Priority 1, Priority 2
10 activities along the Tittabawassee River floodplain,
11 as well as the City of Midland, and tonight what I'll
12 be doing is I'll be giving you an idea of the ongoing
13 interim response activities. What John had alluded to
14 is there are currently activities going on under the
15 auspices of the Tittabawassee floodplain river interim
16 response activities workplan that was approved in
17 January of '05 by DEQ, and based upon that, this
18 presentation will have three parts.

19 I will discuss, first of all, flood response
20 activities underneath that plan for parks and
21 recreational areas. The second part I will discuss
22 are the recreational -- or pardon me, the residential
23 flood response activities under that plan, and the
24 third part of this presentation will highlight some of
25 the Priority 2 implementations undergoing for the

1 interim response activities.

2 As I had mentioned, the ongoing flood response
3 activities are required underneath the workplan that
4 was approved in 2005. This year we had to implement
5 the flood response activities based upon a March 2006
6 flood. As you all remember, we got a lot of rain in
7 the beginning of March, and based upon that, we had
8 some residences that were Priority 1 designated that
9 were flooded, and let me give you a definition of
10 what, first of all, a flood is and also what Priority
11 1's are. A flood by the definition that the U.S.
12 Geologic -- the United States Geologic Service defines
13 it as is anything that's above flood stage, and for
14 the Tittabawassee River, that means anything that's
15 above 24 feet would be considered a flood. So this
16 occurred in March of '06, and so we had to respond as
17 per this workplan.

18 The flood response activities, they went from
19 mid-March and they continue until today for the
20 Priority 1 areas and also for the parks. The
21 recreational areas -- well, before that, we had to
22 monitor the flood levels for the Tittabawassee River.
23 We also responded to many phone calls and e-mails that
24 were sent to us, as well as to AKT Peerless, that we
25 received from residents, and as a result, what we had

1 to do was remove soils and sediments in some of the
2 recreational areas. We also redressed some of the
3 walking paths with fresh wood chips, and also, we
4 prepared some of the areas of erosion that was caused
5 by the flood event. So that's the summary of what we
6 did for the parks and recreational areas.

7 Here are some of the locations where we had to
8 have that performed. I want to mention that we do all
9 of this work in conjunction with the Township
10 authorities. So anytime there's a flood, what we do
11 is we have an open line of communication. They can
12 communicate to us whether or not they need assistance
13 in cleaning soil and sediment, for example, from paved
14 areas. These are some of the five areas that we
15 touched upon. Starting at the north of the
16 Tittabawassee, the Caldwell Boat Launch, as many of
17 you may know, Freeland Festival, Imerman Park, West
18 Michigan Park, and, of course, the Center Road Boat
19 Launch. All of these areas were affected, and all of
20 these received interim response activities in terms of
21 soil and sediment removal.

22 Now on to the residential properties. This is
23 the second part of this presentation. I'll try to
24 make it as concise as possible, because I know you
25 received a lot of information this evening.

1 Priority 1 areas, and I'll take you back to the
2 March 2004 flood event. The March 2004 flood event
3 defined what were Priority 1 and Priority 2 areas, and
4 this is something that DEQ had sat down, and in
5 January of '05, they had designated certain areas to
6 be Priority 1's and Priority 2's. So based upon that,
7 the workplan was shaped around those properties. They
8 were properties that were either flooded, were
9 inundated with flood waters, the March 2004 flood
10 waters, or they were surrounded by the flood waters.
11 Those were the Priority 1 properties. They received
12 services last year based upon how they used their
13 property and where it was flooded. The flood waters
14 on the Priority 1 properties came very close to either
15 the house or some sort of structure that was used on
16 that property. It could have been a shed. It could
17 have been a gazebo, whatever is used back there in the
18 property, and so as a result, folks who were part of
19 the Priority 1's received from AKT Peerless a package,
20 and in that package, they received a list of contacts
21 and they also received a flyer. A flood waters flyer
22 states, if flood waters enters your home, please,
23 contact us. It lists AKT Peerless' address, as well
24 as their phone number, website and e-mail address, and
25 so those Priority 1 residents were informed last year,

1 should flood waters enter their home to contact AKT
2 Peerless, and these interim response activities would
3 be undertaken, and for example, their carpet was
4 cleaned, and these are examples that occurred this
5 year. Carpet was cleaned. Floors and tiles were
6 cleaned. Heating system was cleaned. We replaced top
7 soil in certain areas, and we also reseeded bare
8 areas. So what I'm saying is that any of the work
9 that we did last year that was damaged by flood waters
10 we came back and had an obligation to repair.

11 Now moving on to the third part of this
12 presentation, the Priority 2 implementation process.
13 Now this is something that's probably new, and someone
14 in the audience actually had alluded to it before.
15 I'm going to give you an overview as carefully as I
16 can of this process, because again, like I said, it's
17 new this year. There should have been a package that
18 was received by Priority 2 residents, and in this
19 package, there are -- well, first of all, there's a
20 cover letter. The cover letter states what the
21 process is for Priority 2 homes. It also includes a
22 license or access agreement. It includes an activity
23 and residential surveys, which are both voluntary. It
24 also includes other informational materials, as well
25 as a self-addressed stamped envelope, to send any of

1 those materials back to AKT Peerless. Now let me
2 describe the difference between Priority 1's and
3 Priority 2's. They're very different designations of
4 priorities. They were both affected by the March 2004
5 flood event. However, Priority 2's, the flood waters
6 did not approach a structure on the property. The
7 flood waters were on some portion of that property, so
8 it could have even been a corner of the property. If
9 it was a corner of the property, it was designated a
10 Priority 2. So as a result, Priority 2's -- those
11 properties that were designated as Priority 2's by DEQ
12 in January of '05 received that completed mailing
13 package, which I just showed you, and also, they
14 received phone calls from AKT Peerless, the
15 environmental services firm that we contracted, and
16 they also -- and AKT Peerless started their best
17 efforts, which means, anytime we don't hear from
18 someone that's designated a Priority 2, we have the
19 obligation to contact them and say, are you interested
20 in participating. We could either then make a phone
21 call, and in some cases, as were the Priority 2's,
22 they left door hangers, and they also visited
23 properties, if they were unable to obtain phone
24 numbers for folks. So those efforts are underway as
25 we speak.

1 The third thing we're doing is essentially just
2 waiting to receive license agreements, so that means
3 that you're interested in participating with the
4 Priority 2 activities. Those license agreements are
5 also referred to as an access agreement. What that
6 access agreement allows us to do is to come onto your
7 property essentially for observational purposes or any
8 other purposes allowed for under the auspices of the
9 IRA as stipulated. So if we're going to make a
10 property visit, which is the next bullet that I'll
11 talk about, we need to have the access agreement.
12 That also allows not only Dow and subcontractors to
13 come onto your property but it allows DEQ to as well,
14 and we're obligated to tell you that. By the way,
15 these license agreements at anytime can be rescinded,
16 and all you have to do is contact AKT Peerless.
17 Should you have mailed one in and now said, I'm not
18 interested anymore, that's fine, you know. There's a
19 provision for you to rescind it. So the next thing,
20 after you receive -- I should say, after AKT Peerless
21 receives and Dow receives the license agreements, a
22 property visit will be scheduled. Now this is
23 upcoming. The property visit will be scheduled, and
24 whenever there is a property visit, AKT Peerless
25 always calls before they come. They identify

1 themselves as AKT Peerless employees, and do you all
2 have a badge? Yes, they have a badge as well. So for
3 your own piece of mind, you should know with a badge
4 and with a phone call that it is AKT Peerless that is
5 showing up on your property.

6 And the very last thing, and I think this is my
7 last slide, after that property visit, what they're
8 going to do is they'll be able to identify interim
9 response activities. Very similar to Priority 1, you
10 go on. You meet with the resident. You find out how
11 does the resident use the property. How do you use
12 it? Do you have a fire pit out back? Do you have a
13 picnic table? Where it is in relationship to the
14 flood event, et cetera? Those are the types of things
15 and questions that will be asked during that home
16 visit, and usually -- how long does a home visit take
17 on average -- 45 minutes to an hour, and generally,
18 it's just AKT Peerless, one of their representatives,
19 outside walking with you. They don't enter your home.
20 They're outside walking around the property and just
21 asking you, so how do you use this and that area, and
22 then you -- at that time, you agree upon what the
23 appropriate interim response activities should be.
24 You are given a voucher if there's any work that needs
25 to be done. As in the flood response, you get a

1 voucher. You're able to contact a representative who
2 is an approved vendor to perform any services that are
3 agreed upon. So I think that concludes my
4 presentation of the ongoing interim response
5 activities, and I will welcome questions. Thank you.

6 CHUCK NELSON: Questions. Sir.

7 AUDIENCE MEMBER: I'm confused. What
8 started this whole process? Now normally Love Canal
9 comes to mind and they had a high incident of illness.
10 What is the case along the Tittabawassee River and in
11 Midland? Is this problem directed by a high incident
12 of illness, or is this, as John said, that there's
13 going to be a health risk assessment? That says to
14 me, it's something in the future. Do you know if -- I
15 mean, we all know dioxin, they say, can harm you, but
16 I want to know, has it harmed anybody? I mean, you
17 would think that would start the whole process, not
18 just because we have dirty water and the DEQ wants to
19 clean it up.

20 JIM SYGO: Well, there are several items
21 that actually started this process. The first of
22 which I guess I'd have to say is the plant, Dow
23 Chemical's facility in Midland, being a regulated
24 facility under the Resource Conservation and Recovery
25 Act. As part of that Act, Dow has a responsibility to

1 address any releases from their property of hazardous
2 constituents. A hazardous constituent in this
3 particular case that we've been focusing on has been
4 dioxins and furans. There may be others that the PCOI
5 evaluations will tell us, but those are the primary
6 ones that we've been focusing on initially, and I
7 understand you're new to the area from what I can
8 tell.

9 AUDIENCE MEMBER: 15 years.

10 JOHN MUSSER: Initially, in the City of
11 Midland in the 90's, as well as in the late 90's as
12 well, but then in early 2000, we found out there were
13 significant levels of dioxins and furans in the
14 Tittabawassee River sediments and in the floodplain as
15 well. So that's a more recent discovery of the levels
16 and concentrations that we're seeing in those areas.
17 So that's one aspect that requires Dow to address the
18 release of those hazardous constituents.

19 The other aspect that requires us to move forward
20 in evaluating this further is that there were
21 petitions that were filed by three or four petitioners
22 for a health consultation relative to the levels of
23 contamination that are being found not only in the
24 City of Midland but also in the Tittabawassee River,
25 and that's done through the Agency for Toxic

1 Substances and Disease Registry. They're an agency of
2 the CDC, the Center for Disease Control, and in
3 anyway, that particular process was developed. Those
4 evaluations were conducted. The Michigan Department
5 of Community Health was involved in the development of
6 I believe it was two or three, four consultations, and
7 as part of that, I think their determinations were
8 inconclusive -- I should really let them respond now
9 from this point, Linda.

10 LINDA DYKEMA: Inconclusive in regard to the
11 soil contamination, but for fish and wildgame, we
12 found that there is a public health risk.

13 JIM SYGO: Okay. It was inconclusive at
14 this point for the soil contamination, but it was
15 significant for the fish contamination, as well as the
16 game.

17 AUDIENCE MEMBER: Yeah, they have been, but
18 I don't see them dying in the river, and I don't
19 see --

20 JIM SYGO: Well, the dying in the river
21 isn't the standard that's used to determine whether or
22 not you have a problem.

23 AUDIENCE MEMBER: What about the human
24 health? Should people -- everything -- again, this is
25 my first meeting, and I don't hear anybody talking

1 about that there's a higher incident of this or that
2 or anything. All I hear is there's a strong
3 probability if you eat the dirt you're going to get
4 something, and to me, that would be a reason to work
5 faster and clean it up, and all I hear -- so I can
6 assume it's not a health risk.

7 JIM SYGO: Well, I think the answer to that
8 is we don't know if it's a health risk. We believe it
9 could be a health risk.

10 AUDIENCE MEMBER: Okay. It's a potential.

11 JIM SYGO: And part of this process is to
12 look at and evaluate and determine whether that health
13 risk does exist. There are several things that are
14 going on. Part of the problem is we don't know what
15 type of exposure people are getting. We suspect that
16 the people that live on the river or are very close to
17 the river in the contaminated soil, eat the fish from
18 the river, hunt the game from the river, are
19 substantially exposed to dioxins and furans at a level
20 that could be serious. We don't know that for sure,
21 but those are part of some of the evaluations that are
22 going on.

23 Dow has -- in fact, Dr. Garabrant is here
24 somewhere. There's an exposure study that's being
25 conducted by the University of Michigan. They expect

1 to have their results available -- I think it's
2 August 15th that they'll be having a meeting to
3 present their results of the exposure evaluations that
4 they've been doing up and down the river. That will
5 be a big help to this process in determining exposure
6 levels in what we're seeing, and we just recently met
7 with Dr. Garabrant's team to look at the type of
8 analysis that would best be helpful for this
9 particular study as well. So we have a better
10 understanding of what the pathways are of dioxins
11 getting not only into the fish and the game but also
12 into humans in the area, too. So that's the hope that
13 a lot of this is going to bring that together in
14 identifying the pathways. The other thing that I
15 might mention, knowing that you're new to the area, if
16 you have a computer --

17 AUDIENCE MEMBER: Is 15 years new?

18 JIM SYGO: No. Then if it's your first
19 meeting, we do have a substantial amount of materials,
20 and I'm sure you've read a lot of it in the paper
21 but it's also --

22 AUDIENCE MEMBER: Yes, I have.

23 JIM SYGO: But it's also on the website,
24 too, if you have access, and we can make it available
25 through our District Office.

1 AUDIENCE MEMBER: I was misinformed. I
2 thought you could ask questions. That's why I came
3 tonight because I thought you could ask questions.

4 CHUCK NELSON: You can, but other people
5 need to ask them, too, and I'm not going to burn all
6 of our time on one person, sir. One more question.

7 AUDIENCE MEMBER: My answer to that then is,
8 there aren't any documented medical cases attributed
9 to the Tittabawassee River?

10 JIM SYGO: I don't know that we can say that
11 there are any documented cases or not. We haven't
12 done an epidemiological study.

13 AUDIENCE MEMBER: Well, that didn't prompt
14 it is my point?

15 JIM SYGO: No. The prompting is primarily
16 through the regulatory process.

17 AUDIENCE MEMBER: Down the river is what
18 prompted it?

19 JIM SYGO: Dow's existing facility and the
20 release from that facility has prompted this.

21 AUDIENCE MEMBER: It's been going on for
22 years. Even before the river --

23 AUDIENCE MEMBER: Next question.

24 AUDIENCE MEMBER: Can I get a question in,
25 please. I'd like to ask the presenter, how many

1 Priority 2 households have contacted you or have you
2 been able to contact?

3 PRISCILLA DENNY: I don't have those
4 numbers. 171.

5 AUDIENCE MEMBER: And of those, how many
6 requested having their properties sampled?

7 PRISCILLA DENNY: Well, I would say they
8 requested to have the properties sampled because that
9 wasn't like --

10 AUDIENCE MEMBER: How many signed access
11 agreements, let me put it that way?

12 PRISCILLA DENNY: 171.

13 AUDIENCE MEMBER: Thank you.

14 CHUCK NELSON: Now we're going to do this.
15 We are at the point in the meeting where we will have
16 discussion overall. I'd especially like to hear from
17 people we haven't heard from yet, so everybody gets
18 their chance. So, sir, go right ahead.

19 AUDIENCE MEMBER: This may help answer this
20 gentleman's question here. I'm a retired Dow
21 scientist, and it seems like we went from parts per
22 billion to parts per trillion. If we stayed at parts
23 per billion, I'd say we have no problem, and I say
24 that because here I was watching ABC Nightline about
25 25 years ago, and they came on and said, do you

1 realize dioxin in Saginaw will extend 200 parts per
2 trillion in water. Well, I determined the value of
3 2/10ths of a part per billion. He was quoting my
4 figure, but it sounds much worse when you put it in
5 parts per trillion, and I did the original work for
6 Dow on isolating 2,3,7,8 DCB. I set the science,
7 determined the solubility in the water and in other
8 various solvents. We tested it for chloracne and so
9 on and so forth. So I'm just saying that as soon as
10 we went from parts per billion to parts per
11 trillion -- what if we went to parts per quadrillion?
12 That would scare everybody, and the dioxin and furans
13 will decompose in the environment, as opposed to lead
14 and mercury which will stay for all eternity.

15 CHUCK NELSON: Other questions or comments?

16 Is there anyone who has not spoken yet? If you
17 haven't, sir, you need to get to a microphone.

18 AUDIENCE MEMBER: Well, you have, sir --
19 excuse me, sir, you've let others lament up here
20 improperly, and you're supposed to take
21 facilitation -- control of the facilitation as far as
22 I'm concerned, Mr. Nelson.

23 CHUCK NELSON: Fire away as soon as he's
24 done.

25 AUDIENCE MEMBER: I got a question. Are

1 they going to redo the Priority 1 if you got flooded

2 out this year?

3 PRISCILLA DENNY: Pardon me, sir, can you,

4 please, repeat the question?

5 AUDIENCE MEMBER: I got flooded out this

6 year again. I told him -- now I was flooded out in

7 2004. Are they going to do some more work for the

8 people that got flooded out this year?

9 PRISCILLA DENNEY: If you're part of the

10 Priority 1's --

11 AUDIENCE MEMBER: I'm part of the

12 Priority 1's.

13 PRISCILLA DENNEY: Then the answer is, yes,

14 and what I'd like you to do, sir, please, is to after

15 the presentations and questions and answers, please,

16 come and contact myself, and we'll get together with

17 our contractors.

18 AUDIENCE MEMBER: Do I have to call AKT

19 Peerless again?

20 PRISCILLA DENNEY: Yes, you can, but before

21 you leave this meeting, we'd like to know who you are

22 to make sure we don't lose you.

23 AUDIENCE MEMBER: I can come up there and

24 tell you who I am.

25 PRISCILLA DENNEY: After the meeting when

1 we're done.

2 AUDIENCE MEMBER: I would like to talk to
3 Peter Simon. Sir, what I'd like to know is, after you
4 collect all of this data on the first 6 miles of the
5 Tittabawassee River, if a major flood event can
6 reshuffle your information for you, would you have to
7 start all over again?

8 PETER SIMON: Part of the process that we go
9 through is understanding -- I had talked about not
10 only the deposition and erosion aspects, but there is
11 an understanding of the stability. You need to
12 understand what the stability is and what the rate of
13 erosion will be. So that is one of the layers, and I
14 didn't want to get into a real detailed discussion,
15 but having an understanding of the relative stability
16 of the deposition areas and erosion areas is an
17 integral part that we need to identify, and based on
18 those geomorphic surfaces, we'll have some
19 understanding of that for each of those surfaces.

20 AUDIENCE MEMBER: Have some of the other
21 rivers that you've used this process on, have they
22 been as dynamic and fast moving as the Tittabawassee
23 is?

24 PETER SIMON: In terms of fast moving --

25 AUDIENCE MEMBER: As fast as that river

1 floods frequently.

2 PETER SIMON: This is a very flashy river.

3 It is -- the Pine River has its own set of

4 circumstances that are complicated. The overbank

5 aspects of that were very complicated, but it really

6 wasn't a structure -- or the river setting wasn't a

7 structure like this, and Dave can elaborate more on

8 this. This is really an undersized river with a

9 floodway, and it's -- based on the structure of the

10 river or the landscape of it, it lends to that flashy

11 nature of it. So as I had alluded, there are some

12 special circumstances to this river that need to be

13 factored into this analysis. Every river is

14 different, so you can't just plug everything from one

15 project and plug it into another unfortunately.

16 JOHN MUSSER: You have also worked on the Fox, right?

17 PETER SIMON: We have done some work on the

18 Fox River, too.

19 AUDIENCE MEMBER: I appreciate your

20 presentation. It was very coherent. The other thing

21 I'd like you to address, the folks from DEQ, and if

22 Dow and EPA want to respond, I'd like to hear your

23 response, to a recently completed Dow benchmarking

24 workshop that took place at the University of Michigan

25 that Dow sponsored, and the workshop focused on the

1 need to conduct extensive studies in fully
2 characterizing and understanding the river prior to
3 doing corrective actions and in addition to the
4 remediation technologies. Dave Satrowski from EPA
5 stated during the conference that the length of time
6 devoted to proven remediation studies should be
7 balanced against the dynamic nature of the river.
8 Dave said that it would not be productive to spend
9 another year studying the river and then have a major
10 flood event reshuffle the cards and render those
11 studies unusable, and this was from the EPA. So I
12 would like you to address it, and I would like to know
13 from DEQ and EPA, given that this study period or time
14 is so long, how much of a concern is that?

15 PETER SIMON: When you say this study period
16 is so long, I'm not sure what you're referring to.

17 AUDIENCE MEMBER: If you're going to have a
18 major flooding event on the Tittabawassee River and
19 only study 6 miles and you have to major flooding
20 event, all of a sudden, is your data mute, and how
21 concerned are EPA or DEQ about the length of time it's
22 going to take you to do the entire 22 miles of that
23 river so that we can get to corrective action?

24 PETER SIMON: Sure. There are aspects of
25 the river that I'm sure are going to be very dynamic.

1 As an example, the Pine River that we worked on, we
2 had two 100 year floods in a matter of three months.
3 We did -- it was unprecedented in 2004, and it was
4 such a radical change in the inchannel sediments that
5 we had to literally map the inchannel sediments -- we
6 mapped them four times that year. Normally, we only
7 map them right before we go out and begin to initiate
8 corrective action. So having some understanding of
9 what that dynamic is and the relative magnitude of
10 that or putting some numbers to that -- we got some
11 idea what the accretion rates are for deposition
12 areas. We also need to understand for those areas
13 what is the relative rates of erosion, and there may
14 be some areas that unfortunately we'll have to
15 readdress right before you implement corrective
16 action.

17 AUDIENCE MEMBER: So if there were,
18 potentially, that could wipe out all of your
19 information?

20 PETER SIMON: I seriously doubt it.

21 DAVE RICHARDSON: Obviously, in-channel,
22 absolutely, it changes it entirely. In fact, that's
23 why, as part of our sampling plan that we're going to
24 work through with MDEQ, the inchannel sampling should
25 not be done extensively right now, because next flood,

1 it's going to change. So you do that right before you
2 do some corrective action, but we've got to do enough
3 to figure out what's going on with the inchannel. In
4 the overbank, you have erosion on the banks. There's
5 no doubt about that, and you have to watch out for
6 that, and there's ways to address that in terms of
7 erodability. In the overbank though, when you have
8 trees and you have grass that's this high, you're
9 going to have a lot less erosion. Basically, those
10 are deposition areas. So the reshuffling of the cards
11 isn't so much the issue is how much more deposition
12 did occur, and that can be addressed quite quickly and
13 easily, and it's probably not going to change the
14 existing profile. When we take -- in the overbank
15 when we take a soil core, we're probably going down
16 three or four feet, and we're looking at each soil
17 horizon, and so all you're doing when you add
18 deposition then from a flood is you're putting a
19 little layer on top. It's kind of like frosting on
20 top of the cake, and so it doesn't address it that
21 much. We certainly would do some studying to see how
22 much did it change the concentrations, but I don't --
23 would we have to go back and extensively resample, we
24 wouldn't.

25 AUDIENCE MEMBER: Thank you very much.

1 AL TAYLOR: I just wanted to make a comment.
2 We concur with what the guys from ATS said on that,
3 and I think that's also supported by the fact that on
4 the floodplains we have contamination at substantial
5 depth. Right along the side of the river, those
6 levies, I mean, they're seeing up to 23 parts per
7 billion or 23,000 parts per trillion, depending on
8 whether you want to use parts per trillion or parts
9 per billion, at 9 feet deep. So those obviously have
10 been accumulating contaminated sediments for quite a
11 period of time. In the river, it is going to change
12 when you have flood events, and it's going to require,
13 you know, pre-remedial -- characterization
14 pre-remediation or contemporaneous remediation I think
15 has been pointed out before.

16 CHUCK NELSON: Sir.

17 AUDIENCE MEMBER: Thank you, Mr. Nelson. My
18 name is Vince Castellanos in case you forgot. I have
19 a very important question. The reality is I do not
20 see two things in this booklet, and I think this is
21 addressed to the MDEQ, first of all, why are they only
22 addressing 1,000 parts per trillion in here for
23 adults, and the second part, who speaks for the
24 children and their contaminated levels? I've asked
25 that for the last 22 years. I'm still asking that

1 question. Who speaks for these children? How much
2 can they be exposed to? Now before you answer that, I
3 do want to congratulate everyone for working together
4 here. I think it's -- I think we'll probably get
5 there eventually, and I know we're all in a rush to
6 get to the end of this lengthy process, but that's an
7 important question to me.

8 JIM SYGO: Vince, which booklet is it that
9 you have? There's three of them.

10 AUDIENCE MEMBER: I have here reducing
11 Exposures at Home.

12 JIM SYGO: Okay.

13 AUDIENCE MEMBER: That's all you have in
14 here are four stages and they're all adult exposure
15 stages.

16 JIM SYGO: So you're talking about the
17 histograms that are in there?

18 AUDIENCE MEMBER: No. I'm talking about the
19 explanation in here.

20 JIM SYGO: Can you bring them up here? I'm
21 just trying to make sure I understand your question.

22 AUDIENCE MEMBER: Sure.

23 JIM SYGO: These are the histograms. We're
24 looking at adult exposures here, and this was intended
25 to really try to provide an example of what exposure

1 concerns are, and this is developed in a manner that
2 really provides for, if you follow the recommendations
3 that are put out for fish advisories, that have been
4 put out for game advisories, reducing your exposure to
5 soils and absorption onto your skins and things like
6 that, what it determines is that this is what your
7 exposure level would be, and it does that from a
8 perspective of the potential of intake of dioxin, if
9 you're following those advisories. If you're not
10 following those advisories, there's another segment
11 here. The other segment here is, if you're just
12 eating I think from the average adult under current
13 conditions of what would be a food basket situation,
14 everyone's getting dioxins in their diet. Then if you
15 have -- if you live --

16 AUDIENCE MEMBER: Excuse me, Jim. I don't
17 want to go through all that explanation. I can read
18 as well as you can, but the reality is this, I do not
19 see a specific discussion about exposure for children.
20 That's --

21 JIM SYGO: You're right. There's not a
22 specific exposure for children, but again, from a
23 perspective of exposures in general, if you're
24 following the Department -- Michigan Department of
25 Community Health and DEQ recommendations, the intent

1 here is, how do you minimize your intake of dioxin.
2 The level that we typically use, the 90 parts per
3 trillion, we believe is protective of both adults and
4 children. So, you know, that's the number that we use
5 in terms of our risk evaluations that have been
6 developed by our toxicologists. In this situation,
7 we're dealing with something where -- you know, even
8 as part of the exposure study being conducted by the
9 University of Michigan and Dr. Garabrant's team, they
10 were unable to determine exposures of children because
11 they weren't able to take the blood of younger
12 children. I think you had to be 18 or older to
13 participate in their exposure study, and so they
14 couldn't evaluate the blood of those younger children
15 basically.

16 The point I guess I'm trying to make is from a
17 perspective of trying to draw a comparison of somebody
18 who lives -- somebody who doesn't live on the river,
19 somebody who lives on the river and follows all the
20 recommendations, somebody who lives on the river and
21 doesn't follow any of the recommendations, there's a
22 substantial difference in the type of exposure they're
23 getting. It's not to diminish the importance of what
24 exposure in children are either, because one of the
25 concerns we have certainly are children that do eat a

1 lot of dirt, known as a Pipa syndrome, they would be
2 more at risk living in the floodplain than a lot of
3 other people may be because of the concentration that
4 you see within the soils. Now I'm not sure if I've
5 totally answered your question, and if I haven't,
6 maybe I can turn to Linda Dykema to try to answer that
7 better. I'm not a toxicologist.

8 AUDIENCE MEMBER: Sure. I see -- see I hate
9 to do this with the assumption, because I do not like
10 to assume anything, because you know what assume
11 means, but the reality is if an adult has certain
12 levels then half the weight of a child would be double
13 those levels.

14 LINDA DYKEMA: I think what you should focus
15 on in that picture, as Jim was saying, if you don't
16 follow the advisories, the fish and wildgame
17 advisories, and you don't follow the recommendations
18 to minimize your exposure to soil, you're going to
19 have a lot more exposure to the dioxin in those foods
20 and in that soil. The same principle applies for
21 children, and we have fish advisories that are
22 specific for children and women of child bearing age,
23 so the same principles apply. We want parents to
24 follow the fish advisories when they provide fish
25 meals to their children. We want them to follow the

1 wild game advisories and limit the amount of, for
2 example, venison livers that they would feed their
3 families, and a lot of the recommendations in there
4 for limiting soil exposures are aimed specifically at
5 children, because we know children are filthy little
6 beasts, and they're more likely to get dirt in their
7 mouths than adults.

8 AUDIENCE MEMBER: Why don't we simply say
9 that in these booklets?

10 LINDA DYKEMA: You know, if we need to
11 clarify some of that language --

12 AUDIENCE MEMBER: That's my only point, who
13 is speaking for the children, who is directing the
14 adult to speak for their children?

15 LINDA DYKEMA: Well, I think that whole
16 booklet has that perspective.

17 AUDIENCE MEMBER: Linda, this whole booklet
18 only addresses the adult levels of contamination,
19 that's all I'm saying.

20 JIM SYGO: Look at page 13.

21 CHUCK NELSON: Are there other comments from
22 folks who have not spoken yet? Sir, go ahead.

23 AUDIENCE MEMBER: About the geomorphic
24 studies long the river, what's the results of that in
25 other tests that you've done, other projects? Was the

1 result to dredge the river? Did they find -- did they
2 get it all up?

3 CHUCK NELSON: You're interested in what
4 remedial actions --

5 DAVE RICHARDSON: What we've done on the
6 other rivers is we addressed the contamination,
7 certainly the areas that were hot spots. We went
8 in -- if they were in the overbank, we removed them
9 with a track hoe, and we were dealing with PCB's, and
10 so there was issues of tox levels and nontox levels,
11 so we identified that. We did additional sampling to
12 determine tox, meaning it's greater than 50 parts per
13 million, and non-tox meaning it's less than 50 parts
14 per million, and so we segregated the soil that we
15 removed using a track-hoe doing that. In-channel
16 deposits, the Pine River was such in the summer that
17 we could dam it off, and with extremely large pumps,
18 we could actually pump the river around an area, so we
19 were able to do in-channel excavations in the dry,
20 meaning that we were able to remove the water.

21 Obviously, that's -- well, in the summer, I
22 understand in the Tittabawassee that may be possible
23 because it drops -- the levels drop so low, but the
24 point is, that's something we'd address as we go
25 through this process. As we do our sampling, figure

1 out what our areas of corrective action might be, then
2 we have a number of alternatives that we would employ,
3 but I guess to answer your question, we have done
4 clean up predominantly with a track hoe because we're
5 able to do it in the dry.

6 AUDIENCE MEMBER: It worked out pretty good?

7 DAVID RICHARDSON: It worked out extremely
8 well, yeah. We received a number of approvals on our
9 post -- what we do is we did post remediation
10 sampling, so we sampled the sediment, we sampled the
11 soil to show that we had gotten what we said we were
12 going to. It's wasn't -- the contamination wasn't at
13 a level beyond that that we needed to address, and so
14 we were able to button up those areas.

15 AUDIENCE MEMBER: It's not added in again
16 over a period of time?

17 DAVE RICHARDSON: No, and that's the reason
18 you start upstream. It's extremely important to start
19 upstream, because anything that you do -- say you were
20 going to start somewhere downstream and you do some
21 cleanup, well, if it floods, anything upstream is
22 going to recontaminate downstream. That's why we're
23 starting where we are. We're starting at the
24 confluence of the Chippewa and the Tittabawassee
25 River. So as we work downstream, as we address the

1 issues, we will have less issues downstream.

2 AUDIENCE MEMBER: How about dredging?

3 DAVE RICHARDSON: Depending on the time of
4 year and what we find, dredging is one of the
5 alternatives we may have to look at.

6 AUDIENCE MEMBER: Thank you.

7 CHUCK NELSON: I would note that we have
8 five minutes, and that I want to be certain that if
9 folks have agenda items for the next meeting that you
10 communicate those to us either in the last five
11 minutes here or also in writing or speak to the folks
12 from the DEQ, because we'll be working to put together
13 the next meeting. Just for reference here, the next
14 meeting will be on Wednesday, August the 9th. So for
15 folks who are new to the process, Wednesday,
16 August the 9th, we will be meeting in this room at
17 6:30, and the one after that will be on Wednesday,
18 November the 8th, also at 6:30. We work to set
19 meetings for this entire calendar year to help folks
20 get them on their agenda. A couple of minutes left.
21 We're looking for agenda items. There are some
22 milestones we may cross during that time period and we
23 will bring things to you. It will be at this
24 location, at the Horizon Center.

25 AUDIENCE MEMBER: John Witsky again. I'd

1 just like to respond to Vince's concerns on the human
2 health issues on the subject. He's bringing up
3 something that we've really, really got to get answers
4 for. As Dr. Linda Birnbaum from the EPA stated at
5 both of the presentations she put on here, we've got
6 50 percent of fetuses that don't make it in this
7 country. They don't have an answer for it. It's
8 going to be damn hard to get an answer. You got to
9 get that fetus for one thing and study it, and I don't
10 think that's going to happen, but we've got to get
11 answers on the impact -- the long-term impact on
12 exposure to these types of things.

13 Let me give you a good example. I worked with
14 vinyl chloride at the plant up here, and it took 29
15 years before I developed liver cancer tumor. Two
16 months ago, I had cancer of the appendix. We know
17 what caused the liver cancer. We don't know what
18 caused the appendix cancer, no signs, no nothing, just
19 biopsied it, going in, getting it, but that's
20 addressing Vince's concerns. My concerns, we've got
21 to get answers on what is going to happen at the next
22 generation, not 15 years ago, and the fella that has
23 been here 15 years and this is the first meeting he
24 attends, he should be attending -- if he's concerned
25 about this, there sure was enough response -- or

1 meetings and so on and information on something so
2 vital, that there was opportunity to be there and
3 learn what's happening.

4 CHUCK NELSON: Two minutes left.

5 AUDIENCE MEMBER: One quick question, and it
6 has to do with the children. What sort of fish
7 advisories did we have 75 years ago and 100 years ago
8 when the Dow Chemical emissions were a whole lot worse
9 than they are right now? Ms. Dykema, did we have fish
10 advisories 75 years ago? Did we have them 50 years
11 ago? My reason being, in order to answer Vince's
12 question, is that we had an awful lot of children that
13 were born along the Tittabawassee River during that
14 time. Somebody may ought to do an epidemiological
15 study. Thank you.

16 CHUCK NELSON: It is 9:00. I would -- it's
17 time to go. Is my watch too fast? Okay. Now there's
18 two minutes. Let's finish up.

19 AUDIENCE MEMBER: Peter Simon -- Mr. Musser,
20 maybe you can help with this, too -- I'm wondering,
21 while you're out there collecting that sample and that
22 data, if you find hot spots, if you find elevations,
23 why can't you dredge it out right then and there? Why
24 can't you pull it from the river at that time?

25 JOHN MUSSER: Once again, okay, if we find a

1 hot spot -- and I can't define that for you. I don't

2 have the definition, but the intent is there.

3 AUDIENCE MEMBER: Isn't that a priority,

4 John? Just one second, shouldn't it be a priority for

5 Dow and DEQ to determine when you get out there what

6 constitutes a level?

7 JOHN MUSSER: We'll have to figure it out.

8 I don't know.

9 AUDIENCE MEMBER: Don't you think that's a

10 priority?

11 JOHN MUSSER: Well, point taken, and we are

12 committed to making the right decisions at the right

13 time. When we have the data that says

14 this is a hot spot, and by coordination and

15 collaboration with DEQ, we'll decide on action. If

16 it's required at that time, we'll do it.

17 AUDIENCE MEMBER: You will pull that stuff

18 out of the river?

19 JOHN MUSSER: We will do what is required

20 for the circumstances, Michelle, okay.

21 AUDIENCE MEMBER: You will pull that stuff

22 out of the river?

23 JOHN MUSSER: You heard what I said.

24 CHUCK NELSON: Thank you all for coming. It

25 is 9:00. If you have additional comments, questions

1 for the folks, both Dow, DEQ, EPA and Community health
2 will be here. I'd also encourage you to talk to DEQ
3 folks about agenda items. Thank you very much.

4 (Proceedings concluded.)

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1 STATE OF MICHIGAN)
2)
3 COUNTY OF SAGINAW)
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5

6 I certify that this transcript, consisting of 110
7 pages, is a complete, true, and correct transcript of
8 the proceedings and testimony taken in this case on
9 May 10, 2006.

10

11 I also certify that I am not a relative or
12 employee of or an attorney for a party; or a relative
13 or employee of an attorney for a party; or financially
14 interested in the action.

15

16 May 15, 2006

17

Natalie A. Gilbert, CSR-4607, RPR

18

Notary Public, Saginaw County, MI

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My Commission Expires: 8-10-06

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